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UK METEOROLOGICAL OFFICE
GLOBAL DATA MONITORING REPORT

October 2001

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1and 2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or sea surface temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Bracknell and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of >60 $m\ s^{-1}$ have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference > 60 $m\ s^{-1}$ have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed ($m\ s^{-1}$)
7	RMS observation-background vector ($m\ s^{-1}$)

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-39 show sounding statistics from the polar orbitting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.
N.B. The sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

Figure		Weighting function peak (hPa)
26	Mean	Surface (HIRS8)
27	SD	Surface (HIRS8)
28	Mean	700 (HIRS15)
29	SD	700 (HIRS15)
30	Mean	500-700 (HIRS11)
31	SD	500-700 (HIRS11)
32	Mean	400 (HIRS4)
33	SD	400 (HIRS4)
34	Mean	700 (AMSUA5)
35	SD	700 (AMSUA5)
36	Mean	300 (AMSUA7)
37	SD	300 (AMSUA7)
38	Mean	100 (AMSUA9)
39	RMS	100 (AMSUA9)

Figures 40-54 show sounding statistics from the polar orbitting satellite NOAA-16. Figure 40 shows the mean daily number of ATOVS soundings, and figures 41-54 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.
N.B. The sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

Figure		Weighting function peak (hPa)
41	Mean	Surface (HIRS8)
42	SD	Surface (HIRS8)
43	Mean	700 (HIRS15)
44	SD	700 (HIRS15)
45	Mean	500-700 (HIRS11)
46	SD	500-700 (HIRS11)
47	Mean	400 (HIRS4)
48	SD	400 (HIRS4)
49	Mean	700 (AMSUA5)
50	SD	700 (AMSUA5)
51	Mean	300 (AMSUA7)
52	SD	300 (AMSUA7)
53	Mean	100 (AMSUA9)
54	RMS	100 (AMSUA9)

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics (**Geopotential Height and Windspeed at 100 and 500 hPa**) for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOPs, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).
21. September 2000. Corrected an error affecting the mean positions of a minority of buoys in Table 2.
22. November 2000. An error in the production of Table 6 was corrected. Previously, some sondes with suspect vector winds were being missed.
23. April 2001. Included statistics for ATOVS sounding data from NOAA-16.
24. May 2001. Included statistics for sea surface temperatures from marine surface observations.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for ships, fixed buoys and platforms.
Standard of comparison	:Background field from UKMO global model.
Observation times	:00, 06, 12, 18 UTC
Elements monitored	:Mean sea level pressure (hPa). :Wind speed ($m\ s^{-1}$). :Wind direction (Degrees). :Sea surface temperature (Degrees).

Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the wind observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa (pressure) :25 $m\ s^{-1}$ (vector wind) :10 degrees (sea surface temperature)

SELECTION CRITERIA	:NOBS	≥ 20 , and one or more of the following:	
	1.|bias|	≥ 4 hPa	(pressure),
		≥ 5 $m\ s^{-1}$	(wind speed),
		≥ 30 degrees	(direction).
		≥ 3 degrees	(sea surface temperature).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
		≥ 5 degrees	(sea surface temperature).
	3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
CGDS	ALL	P	SUR	152	0	0	5.1	-9.4	10.7
CG2960	ALL	P	SUR	28	16	57	1.5	1.4	2.1
C6FE5	ALL	P	SUR	29	0	0	0.8	5.3	5.3
C6KE3	ALL	P	SUR	32	0	0	2.8	-4.4	5.2
C6LU3	ALL	P	SUR	24	0	0	1.2	6.7	6.8
C6QK	ALL	P	SUR	40	0	0	1.4	5.9	6.1
C6QT7	ALL	P	SUR	32	0	0	1.1	-7.3	7.4
ELJL8	ALL	P	SUR	57	2	4	1.0	4.2	4.3
ELRR2	ALL	P	SUR	32	0	0	0.8	-4.5	4.6
ELVJ9	ALL	P	SUR	31	0	0	1.1	-4.8	4.9
ELWR	ALL	P	SUR	65	0	0	1.2	-12.1	12.1
ELZK6	ALL	P	SUR	40	10	25	3.8	-3.4	5.1
FGTO	ALL	P	SUR	108	13	12	6.8	-3.5	7.7
JJKV	ALL	P	SUR	43	0	0	0.7	-4.4	4.4
KGTZ	ALL	P	SUR	20	8	40	6.2	-0.3	6.2
KS002	ALL	P	SUR	31	16	52	2.4	11.7	11.9
KS004	ALL	P	SUR	22	0	0	0.8	4.4	4.5
MVLA	ALL	P	SUR	28	0	0	1.3	10.1	10.1
OUSE6	ALL	P	SUR	34	0	0	1.0	-5.3	5.4
PCAG	ALL	P	SUR	36	0	0	2.1	-10.4	10.6
PDLF	ALL	P	SUR	44	0	0	1.1	-4.2	4.3
PECF	ALL	P	SUR	37	0	0	2.2	-4.2	4.7
UBAU	ALL	P	SUR	93	0	0	2.9	-4.9	5.7
UBDL	ALL	P	SUR	44	1	2	1.2	-5.7	5.8
UCJI	ALL	P	SUR	23	0	0	2.4	-6.1	6.6
UCJL	ALL	P	SUR	36	0	0	1.5	6.2	6.4
UCTS	ALL	P	SUR	28	2	7	1.5	-11.9	12.0
UFNO	ALL	P	SUR	49	0	0	1.1	6.7	6.8
UGGA	ALL	P	SUR	97	1	1	3.5	-4.2	5.4
UGWB	ALL	P	SUR	22	0	0	1.8	9.5	9.7
UHLE	ALL	P	SUR	45	0	0	1.3	-9.5	9.6
VCJM	ALL	P	SUR	21	21	100			
VCRT	ALL	P	SUR	31	0	0	1.0	-4.2	4.3
VGJC	ALL	P	SUR	21	9	43	5.1	-0.3	5.1
V7BW9	ALL	P	SUR	48	0	0	1.0	-4.2	4.3
WCV7620	ALL	P	SUR	21	0	0	1.5	4.4	4.7
4XGV	ALL	P	SUR	49	0	0	0.8	6.0	6.1
9MBW	ALL	P	SUR	31	1	3	1.5	-11.5	11.6
WIND SPEED									
C6CU6	ALL	SPEED	SUR	30	0	0	3.8	5.7	6.8
C6RJ6	ALL	SPEED	SUR	21	2	10	7.4	5.4	9.1
ELWG8	ALL	SPEED	SUR	31	0	0	4.6	9.5	10.6
ELXT8	ALL	SPEED	SUR	28	0	0	3.8	7.2	8.1
JKES	ALL	SPEED	SUR	76	0	0	3.6	5.1	6.2
OWRN2	ALL	SPEED	SUR	47	2	4	5.2	12.7	13.7
PJOD	ALL	SPEED	SUR	51	0	0	4.2	5.4	6.8
SXYY	ALL	SPEED	SUR	47	0	0	5.0	6.5	8.2
S6JQ	ALL	SPEED	SUR	29	0	0	2.3	5.4	5.9
VOCJ	ALL	SPEED	SUR	82	20	24	5.8	8.5	10.3
WYL4908	ALL	SPEED	SUR	20	1	5	3.4	6.4	7.3
3ESP7	ALL	SPEED	SUR	30	0	0	4.2	7.1	8.2
62109	ALL	SPEED	SUR	42	0	0	1.0	-14.2	14.2
9MBW	ALL	SPEED	SUR	30	0	0	6.4	8.3	10.5
WIND DIRECTION									
DGNB	ALL	DIRN.	SUR	379	0	0	92.1	1.0	92.1
ELVM6	ALL	DIRN.	SUR	36	0	0	114.4	37.5	120.3
FNBR	ALL	DIRN.	SUR	29	0	0	81.0	31.0	86.7
MVLA	ALL	DIRN.	SUR	20	0	0	17.4	-34.1	38.3
VOCJ	ALL	DIRN.	SUR	54	20	37	83.4	-64.6	105.5

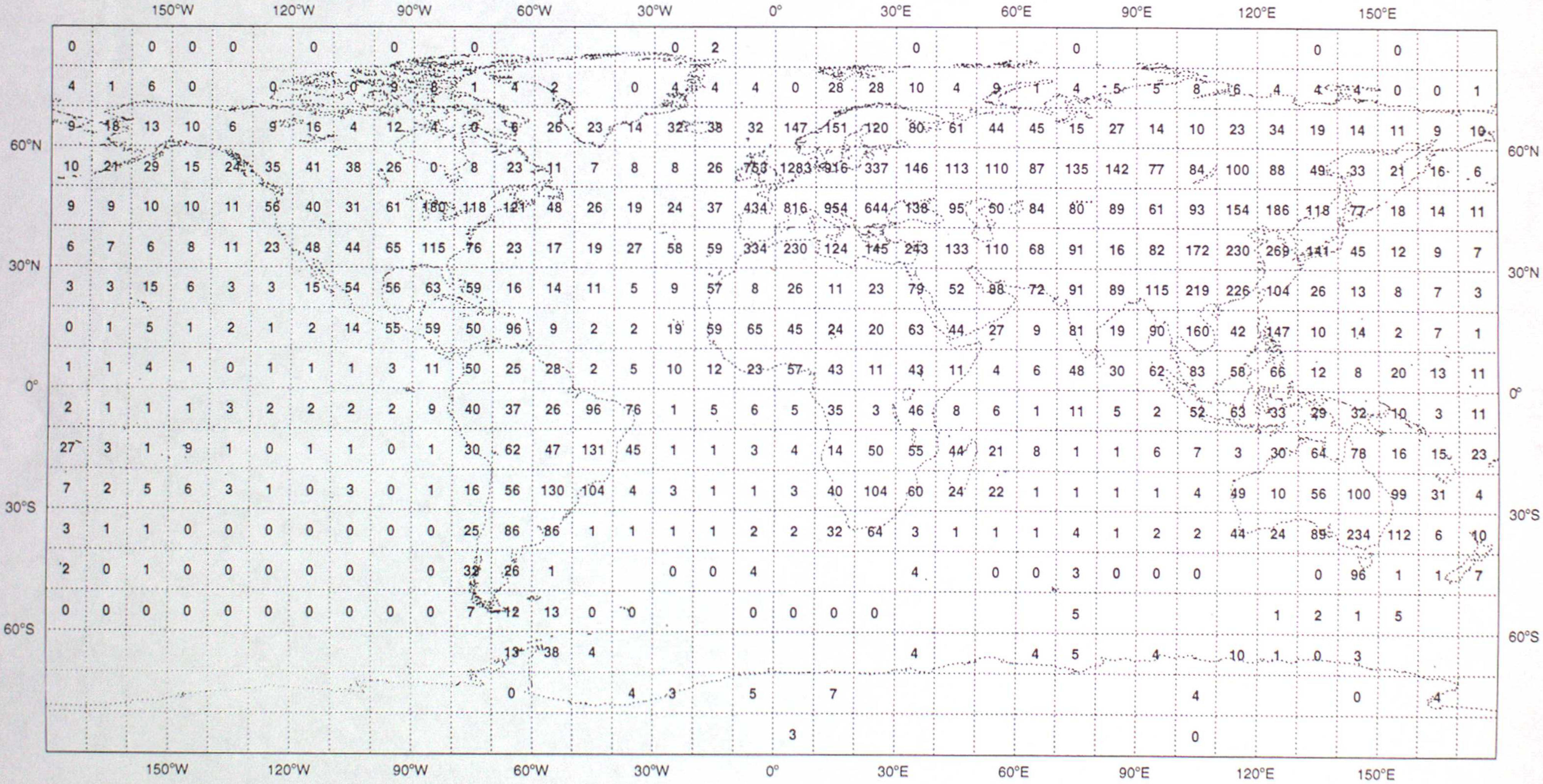
IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
41026	ALL	DIRN.	SUR	44	0	0	114.2	-16.3	115.4
43301	ALL	DIRN.	SUR	26	0	0	39.4	-83.0	91.9
62414	ALL	DIRN.	SUR	27	0	0	21.2	-34.2	40.3
SEA SURFACE TEMPERATURE									
AVOSTEST	ALL	SST	SUR	66	66	100			
CGDS	ALL	SST	SUR	142	73	51	1.8	-0.4	1.8
CGHL	ALL	SST	SUR	48	19	40	2.1	-0.5	2.2
CG8048	ALL	SST	SUR	77	77	100			
C6CU6	ALL	SST	SUR	30	0	0	1.4	-3.0	3.4
C6FE5	ALL	SST	SUR	27	0	0	0.5	3.8	3.8
C6MS4	ALL	SST	SUR	39	0	0	0.9	-4.3	4.4
C6MX4	ALL	SST	SUR	41	0	0	0.5	3.6	3.6
C6PZ8	ALL	SST	SUR	42	0	0	3.2	-3.2	4.6
C6QF6	ALL	SST	SUR	40	1	2	3.3	-3.1	4.5
DBBI	ALL	SST	SUR	354	354	100			
DKGJXD	ALL	SST	SUR	46	1	2	1.2	3.4	3.6
DQVO	ALL	SST	SUR	45	0	0	1.0	3.0	3.1
ELGN6	ALL	SST	SUR	21	0	0	0.9	6.6	6.7
ELJQ2	ALL	SST	SUR	36	0	0	3.1	3.8	4.9
ELKU8	ALL	SST	SUR	49	1	2	1.1	4.0	4.2
ELVM6	ALL	SST	SUR	100	43	43	0.4	0.7	0.8
ELXX4	ALL	SST	SUR	34	0	0	2.9	-3.6	4.6
ELXZ6	ALL	SST	SUR	29	0	0	0.3	3.0	3.0
ELX03	ALL	SST	SUR	40	0	0	2.6	-4.1	4.8
H9GW	ALL	SST	SUR	44	0	0	0.9	3.4	3.5
JADY	ALL	SST	SUR	88	1	1	0.5	4.9	4.9
KHRC	ALL	SST	SUR	25	0	0	0.6	-3.1	3.2
KRHX	ALL	SST	SUR	46	0	0	1.3	-3.0	3.3
KRPB	ALL	SST	SUR	62	0	0	0.9	-5.5	5.6
LF5T	ALL	SST	SUR	148	98	66	1.5	0.3	1.6
MVNF9	ALL	SST	SUR	24	9	38	2.0	2.2	3.0
MZNM7	ALL	SST	SUR	44	1	2	0.5	-3.5	3.6
OXIF2	ALL	SST	SUR	42	1	2	2.1	3.1	3.8
PDIU	ALL	SST	SUR	37	0	0	2.2	-4.9	5.4
PDYI	ALL	SST	SUR	62	0	0	0.8	-3.1	3.2
PGRE	ALL	SST	SUR	27	0	0	3.3	-3.7	5.0
PJJU	ALL	SST	SUR	28	9	32	0.8	0.7	1.1
PJVQ	ALL	SST	SUR	38	0	0	1.8	-3.2	3.7
SGIX	ALL	SST	SUR	35	0	0	1.2	6.7	6.8
SIWB	ALL	SST	SUR	28	0	0	1.2	4.4	4.6
TSMS	ALL	SST	SUR	22	0	0	1.6	-4.2	4.5
UBLX	ALL	SST	SUR	20	0	0	2.4	-3.5	4.2
UBSW	ALL	SST	SUR	31	0	0	2.6	-3.8	4.6
UCBP	ALL	SST	SUR	34	0	0	1.2	-3.9	4.1
UCOY	ALL	SST	SUR	26	0	0	1.7	-3.1	3.5
UCTS	ALL	SST	SUR	31	31	100			
UFAA	ALL	SST	SUR	43	29	67	1.8	-2.3	3.0
UIAC	ALL	SST	SUR	35	0	0	1.0	4.2	4.4
UIDS	ALL	SST	SUR	43	0	0	1.8	-3.5	3.9
VCDT	ALL	SST	SUR	28	7	25	2.6	-0.2	2.6
VGLZ	ALL	SST	SUR	43	36	84	0.4	0.7	0.8
WCW9126	ALL	SST	SUR	26	24	92	0.4	-1.8	1.9
WDA3673	ALL	SST	SUR	28	2	7	2.1	3.2	3.8
WGLA	ALL	SST	SUR	21	1	5	2.4	-7.4	7.8
WZJD	ALL	SST	SUR	25	0	0	0.5	-3.1	3.2
ZCBO5	ALL	SST	SUR	54	3	6	2.7	-3.1	4.1
ZQAY4	ALL	SST	SUR	62	2	3	2.1	-5.2	5.6
3FDO6	ALL	SST	SUR	62	1	2	1.5	5.8	6.0
3FDO7	ALL	SST	SUR	20	0	0	1.7	-3.1	3.6

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
SEA SURFACE TEMPERATURE									
3FIQ7	ALL	SST	SUR	61	0	0	2.2	-3.1	3.8
45139	ALL	SST	SUR	688	0	0	2.4	-4.7	5.3
45141	ALL	SST	SUR	462	348	75	3.3	7.4	8.0
45145	ALL	SST	SUR	585	585	100			
45147	ALL	SST	SUR	695	695	100			
45148	ALL	SST	SUR	661	661	100			
45150	ALL	SST	SUR	475	205	43	1.1	9.3	9.4
45152	ALL	SST	SUR	670	670	100			
46131	ALL	SST	SUR	694	694	100			
46146	ALL	SST	SUR	625	625	100			
46181	ALL	SST	SUR	695	695	100			
9VBK	ALL	SST	SUR	22	0	0	1.9	-4.8	5.2
9VBS	ALL	SST	SUR	24	11	46	0.7	0.6	0.9

Figure 1. SHIP/SYNOP mean daily count. OCTOBER 2001

Main hours only

Global average number of observations in 24 hours = 21369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4 1 6 0 0 0 9 8 1 4 2 0 4 4 4 0 28 28 10 4 9 1 4 5 5 8 6 4 4 4 0 0 1
9 18 13 10 6 9 16 4 12 4 0 6 26 23 14 32 38 32 147 151 120 80 61 44 45 15 27 14 10 23 34 19 14 11 9 10
10 21 29 15 24 35 41 38 26 0 8 23 11 7 8 8 26 753 1283 916 337 146 113 110 87 135 142 77 84 100 88 49 33 21 16 6
9 9 10 10 11 56 40 31 61 180 118 121 48 26 19 24 37 434 816 954 644 138 95 50 84 80 89 61 93 154 186 118 77 18 14 11
6 7 6 8 11 23 48 44 65 115 76 23 17 19 27 58 59 334 230 124 145 243 133 110 68 91 16 82 172 230 269 141 45 12 9 7
3 3 15 6 3 3 15 54 56 63 59 16 14 11 5 9 57 8 26 11 23 79 52 88 72 91 89 115 219 226 104 26 13 8 7 3
0 1 5 1 2 1 2 14 55 59 50 96 9 2 2 19 59 65 45 24 20 63 44 27 9 81 19 90 160 42 147 10 14 2 7 1
1 1 4 1 0 1 1 1 3 11 50 25 28 2 5 10 12 23 57 43 11 43 11 4 6 48 30 62 83 58 66 12 8 20 13 11
2 1 1 1 3 2 2 2 2 9 40 37 26 96 76 1 5 6 5 35 3 46 8 6 1 11 5 2 52 63 33 29 32 10 3 11
27 3 1 9 1 0 1 1 0 1 30 62 47 131 45 1 1 3 4 14 50 55 44 21 8 1 1 6 7 3 30 64 78 16 15 23
7 2 5 6 3 1 0 3 0 1 16 56 130 104 4 3 1 1 3 40 104 60 24 22 1 1 1 1 4 49 10 56 100 99 31 4
3 1 1 0 0 0 0 0 0 0 25 86 86 1 1 1 1 2 2 32 64 3 1 1 1 4 1 2 2 44 24 89 234 112 6 10
2 0 1 0 0 0 0 0 0 32 26 1 0 0 4 4 0 0 3 0 0 0 0 96 1 1 7
0 0 0 0 0 0 0 0 0 0 7 12 13 0 0 0 0 0 0 5 1 2 1 5
13 38 4 4 4 5 4 10 1 0 3
0 4 3 5 7 4 0 4
3 0

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

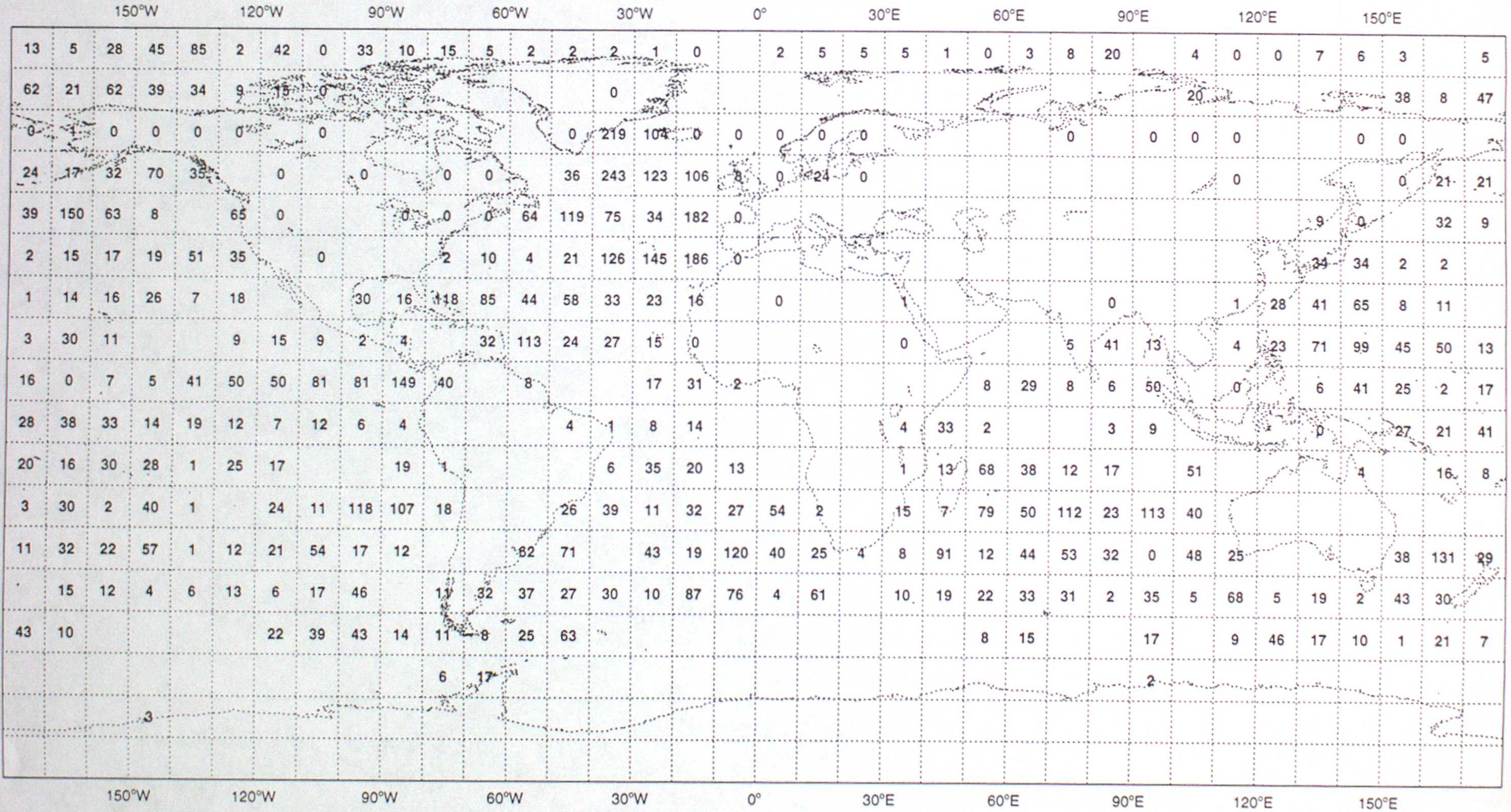
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoys.
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees). :Sea surface temperature (degrees).
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the wind observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)	
	:25 m s^{-1}	(vector wind)	
	:10 degrees	(sea surface temperature)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.|bias|	≥ 4 hPa	(pressure),
		≥ 5 m s^{-1}	(wind speed),
		≥ 30 degrees	(direction).
		≥ 3 degrees	(sea surface temperature).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
		≥ 5 degrees	(sea surface temperature).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
15905	-32.3	-25.2	ALL	P	SUR	29	29	100			
25541	79.9	105.5	ALL	P	SUR	713	225	32	7.9	-2.6	8.3
25551	88.5	143.3	ALL	P	SUR	466	241	52	7.0	-3.4	7.8
46561	30.7	-168.7	ALL	P	SUR	224	0	0	0.7	-4.5	4.5
WIND SPEED											
52522	33.2	-169.6	ALL	SPEED	SUR	242	0	0	1.8	-5.8	6.1
WIND DIRECTION											
41648	22.7	-71.5	ALL	DIRN.	SUR	523	7	1	21.1	39.9	45.1
SEA SURFACE TEMPERATURE											
12504	24.6	35.1	ALL	SST	SUR	22	0	0	5.1	0.8	5.2
31910	27.9	-60.8	ALL	SST	SUR	92	24	26	3.3	1.6	3.6
32529	-10.7	56.6	ALL	SST	SUR	48	5	10	3.9	5.4	6.7
32870	5.4	-94.9	ALL	SST	SUR	74	16	22	2.6	-3.2	4.1
32873	2.1	-112.7	ALL	SST	SUR	94	24	26	0.8	-1.2	1.4
32874	2.2	-113.1	ALL	SST	SUR	90	24	27	0.6	-1.4	1.5
32876	5.3	-97.0	ALL	SST	SUR	80	22	27	2.2	-2.5	3.4
32878	6.9	-117.9	ALL	SST	SUR	97	23	24	2.4	-3.3	4.1
32879	3.9	-102.2	ALL	SST	SUR	69	29	42	1.5	-1.9	2.4
32909	3.3	-127.0	ALL	SST	SUR	114	46	40	1.3	-1.6	2.1
32911	1.3	-119.5	ALL	SST	SUR	43	28	65	0.4	-1.4	1.5
32913	2.2	-122.6	ALL	SST	SUR	103	44	43	0.6	-2.2	2.3
32914	2.4	-122.5	ALL	SST	SUR	92	40	43	0.7	-2.1	2.2
32915	2.7	-121.9	ALL	SST	SUR	82	27	33	0.7	-1.9	2.0
32916	2.4	-128.4	ALL	SST	SUR	126	31	25	1.2	-1.9	2.2
32918	1.9	-122.8	ALL	SST	SUR	94	24	26	1.4	-1.9	2.4
33502	-23.4	-25.8	ALL	SST	SUR	89	0	0	0.3	4.1	4.1
33907	-38.8	-51.6	ALL	SST	SUR	320	0	0	2.3	3.1	3.9
43516	6.8	-106.0	ALL	SST	SUR	163	21	13	3.8	4.1	5.6
43536	10.1	-84.5	ALL	SST	SUR	53	53	100			
43559	0.1	-81.2	ALL	SST	SUR	75	0	0	1.1	-7.5	7.6
46903	34.9	-147.4	ALL	SST	SUR	352	110	31	1.0	8.2	8.2
46972	26.8	-124.3	ALL	SST	SUR	203	0	0	0.2	3.3	3.4
51566	51.1	-112.6	ALL	SST	SUR	20	20	100			
53517	-9.2	51.0	ALL	SST	SUR	47	2	4	1.6	8.2	8.4
55912	-37.1	168.3	ALL	SST	SUR	664	0	0	1.2	3.9	4.0
61617	42.4	-127.0	ALL	SST	SUR	116	8	7	0.7	-3.0	3.1
62505	31.7	-17.5	ALL	SST	SUR	375	92	25	0.5	0.1	0.5
62519	42.7	-13.9	ALL	SST	SUR	261	0	0	0.9	5.8	5.9

Figure 2. DRIFTER mean daily count. OCTOBER 2001
Main hours only
Global average number of observations in 24 hours = 9637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62 21 62 39 34 9 15 0 0 20 38 8 47
0 1 0 0 0 0 0 0 219 104 0 0 0 0 0 0 0 0 0 0 0
24 17 32 70 35 0 0 0 0 36 243 123 106 8 0 24 0 0 0 21 21
39 150 63 8 65 0 0 0 0 64 119 75 34 182 0 9 0 32 9
2 15 17 19 51 35 0 2 10 4 21 126 145 186 0 34 34 2 2
1 14 16 26 7 18 30 16 118 85 44 58 33 23 16 0 1 0 1 28 41 65 8 11
3 30 11 9 15 9 2 4 32 113 24 27 15 0 0 5 41 13 4 23 71 99 45 50 13
16 0 7 5 41 50 50 81 81 149 40 8 17 31 2 8 29 8 6 50 0 6 41 25 2 17
28 38 33 14 19 12 7 12 6 4 4 1 8 14 4 33 2 3 9 0 27 21 41
20 16 30 28 1 25 17 19 1 6 35 20 13 1 13 68 38 12 17 51 4 16 8
3 30 2 40 1 24 11 118 107 18 26 39 11 32 27 54 2 15 7 79 50 112 23 113 40
11 32 22 57 1 12 21 54 17 12 62 71 43 19 120 40 25 4 8 91 12 44 53 32 0 48 25 38 131 29
15 12 4 6 13 6 17 46 11 32 37 27 30 10 87 76 4 61 10 19 22 33 31 2 35 5 68 5 19 2 43 30
43 10 22 39 43 14 11 8 25 63 8 15 17 9 46 17 10 1 21 7
6 17 2
3

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Surface pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged excluding those with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60437	36.3N	2.8E	981	S8	84	0	0	0	1.0	-6.4	6.5
60476	35.4N	7.2E	1116	S8	79	4	5	0	0.6	13.9	13.9
60728	36.4N	10.7E	1	MS	69	0	0	99	1.0	-7.9	8.0
61492	16.1N	13.5W	18	MS	54	0	0	7	1.6	4.0	4.3
62790	12.1N	24.9E	674	MS	87	3	3	3	1.5	4.0	4.3
63170	9.5N	44.1E	1326	M	20	0	0	0	0.5	7.9	7.9
63333	11.1N	39.7E	1903	MS	37	0	0	0	1.5	5.1	5.3
63334	10.3N	37.7E	2515	S	36	1	3	0	1.0	10.7	10.7
63402	7.7N	36.8E	1725	S	36	0	0	0	0.8	7.9	7.9
63450	9.0N	38.8E	2354	MS	38	0	0	0	0.6	4.0	4.0
63453	8.9N	39.9E	930	S	36	1	3	0	0.7	-4.4	4.5
63471	9.6N	41.9E	1260	S	34	0	0	0	1.1	9.5	9.6
63478	5.9N	43.6E	295	MS	26	0	0	0	0.8	5.1	5.2
63680	0.3N	32.6E	1144	S	23	0	0	0	1.1	-7.9	8.0
63801	4.9S	29.6E	882	S8	24	1	4	0	0.7	8.3	8.3
65355	9.8N	1.1E	342	MS	73	2	3	100	0.8	-12.1	12.1
67250	15.6S	32.8E	882	S8	34	33	97	0	0.0	5.7	5.7
68030	18.5S	25.6E	1071	8	83	0	0	0	1.0	5.3	5.4
68038	20.5S	26.0E	903	8	82	0	0	1	1.4	4.1	4.3
68396	26.5S	31.3E	641	S8	51	0	0	0	1.1	4.7	4.8
68530	29.1S	23.8E	994	S8	46	1	2	0	3.1	4.4	5.4
68575	30.0S	30.0E	1175	S8	111	111	100	0			
68668	31.5S	28.7E	743	S8	82	39	48	1	1.0	-0.6	1.2

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30554	54.5N	113.6E	995	MS	122	0	0	0	5.0	5.1	7.1
30967	49.9N	115.8E	623	MS	90	0	0	0	1.3	-6.4	6.5
40726	36.8N	45.7E	1384	MS	100	0	0	0	1.2	4.3	4.5
40741	36.6N	61.2E	235	M	95	2	2	0	1.0	-4.1	4.2
41254	23.1N	57.7E	1755	S8	83	83	100	0			
41396	16.0N	48.9E	700	MS	45	0	0	0	0.6	7.0	7.0
41466	13.7N	44.1E	1402	8	39	0	0	0	0.5	-6.0	6.0
44416	28.6N	81.6E	720	MS	58	0	0	0	0.9	4.5	4.6
47022	40.8N	128.2E	1200	S	99	0	0	2	1.8	4.5	4.8
47127	36.9N	127.0E	16	MS	120	0	0	54	0.8	-11.2	11.2
51495	43.5N	91.6E	874	M	120	0	0	5	1.8	8.9	9.1
52602	38.8N	93.4E	2734	S	121	0	0	0	1.2	-5.5	5.6
52866	36.6N	101.8E	2262	S	121	0	0	0	0.9	-4.2	4.3
52955	35.6N	100.8E	3201	S	121	0	0	0	0.7	12.8	12.8
54587	39.1N	123.2E	42	M	119	0	0	1	1.1	-4.3	4.4
56146	31.6N	100.0E	339	S	122	122	100	0			
56444	28.5N	98.9E	3488	S	120	68	57	39	0.6	13.9	13.9
56462	29.0N	101.5E	2994	S	121	0	0	0	1.3	9.4	9.5

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	MS	44	0	0	2	1.3	-5.9	6.0
82181	2.0S	54.1W	146	MS	83	0	0	0	1.2	6.3	6.4
82765	7.3S	47.5W	193	MS	79	0	0	0	0.9	4.6	4.7
83214	10.3S	54.9W	285	MS	80	0	0	23	4.9	-4.0	6.3
83235	12.4S	46.4W	604	MS	89	0	0	0	1.0	7.2	7.3
83319	14.7S	52.4W	315	MS	81	0	0	2	1.8	4.6	4.9
83332	14.1S	46.4W	826	MS	88	47	53	0	0.8	13.9	13.9
83361	15.6S	56.1W	151	MS	80	1	1	0	1.2	4.8	4.9
83408	14.3S	43.8W	447	MS	80	3	4	1	0.8	11.9	11.9
83488	17.8S	42.9W	1097	MS	88	88	100	0			

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83531	18.6S	46.5W	940	MS	87	0	0	0	1.0	-6.4	6.5
83587	19.9S	43.9W	850	MS	88	1	1	2	1.4	-7.4	7.5
83773	23.1S	48.9W	793	MS	88	0	0	52	0.8	-4.4	4.5
83836	25.5S	50.6W	837	MS	89	0	0	1	1.3	-5.5	5.7
83953	30.9S	55.5W	231	MS	89	0	0	0	1.2	-11.1	11.2
84377	3.8S	73.3W	125	S	112	0	0	1	1.6	5.0	5.2
84401	5.2S	80.6W	49	MS	104	0	0	2	1.1	4.1	4.2
84425	5.9S	76.1W	179	MS	23	0	0	0	1.3	5.5	5.7
84455	6.5S	76.4W	281	MS	86	2	2	1	1.4	8.1	8.2
84472	7.1S	78.5W	2620	S	56	0	0	0	0.7	-5.6	5.6
84474	7.2S	76.7W	350	S	22	0	0	0	0.9	10.7	10.7
84501	8.1S	79.0W	26	MS	83	0	0	1	1.1	4.0	4.1
84686	13.6S	72.0W	3248	S	116	0	0	0	1.1	-4.7	4.8
84688	13.7S	73.4W	3444	S	46	0	0	0	0.5	-13.5	13.5
84720	14.9S	75.0W	567	MS	53	0	0	0	0.8	4.9	5.0
84782	18.1S	70.3W	468	MS	92	0	0	0	1.3	8.7	8.8
85140	14.3S	67.4W	140	MS	59	1	2	0	1.4	5.9	6.1
85141	14.5S	67.6W	204	MS	59	0	0	0	1.6	4.7	5.0
85210	16.3S	58.4W	124	MS	55	3	5	0	1.2	4.3	4.5
85264	18.5S	64.1W	1998	S	56	56	100	0			
85312	19.8S	63.9W	992	S	49	1	2	33	6.7	2.4	7.1
85406	18.3S	70.3W	55	M	119	0	0	0	0.9	5.3	5.4
85418	20.5S	70.2W	48	M	120	0	0	0	1.0	4.0	4.1
85432	22.5S	68.9W	2320	S8	84	0	0	0	0.7	5.4	5.4

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71023	65.9N	89.5W	18	MS	120	120	100	0			
71048	61.6N	125.8W	610	MS	122	0	0	0	1.2	4.2	4.4
71747	48.8N	91.6W	424	MS	122	0	0	0	0.7	4.0	4.1
72327	36.1N	86.7W	182	MS	119	0	0	0	0.7	4.2	4.3
72376	35.2N	111.8W	2192	M	116	0	0	3	2.5	4.2	4.9
76118	30.4N	109.7W	1040	MS	31	1	3	0	0.6	-10.7	10.7
76243	28.7N	100.5W	250	MS	80	0	0	1	1.3	4.1	4.3
76658	19.2N	103.7W	494	MS	21	0	0	0	1.1	5.5	5.6
76683	19.3N	98.2W	2248	MS	79	0	0	0	0.9	4.1	4.2
76743	18.0N	92.9W	10	MS	71	0	0	0	0.8	6.6	6.6
76773	17.8N	97.8W	1650	MS	20	0	0	0	0.5	4.1	4.1
76903	14.9N	92.3W	118	MS	83	0	0	0	0.7	6.7	6.7

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
92010	6.1S	145.4E	1587	M	42	0	0	0	1.1	9.7	9.8
92036	2.4S	147.4E	1	8	237	237	100	0			
94130	14.8S	131.9E	120	MS	118	0	0	0	1.0	5.6	5.7
95815	35.1S	144.0E	72	MS	122	0	0	0	2.3	5.5	6.0
96505	3.7N	115.7E	913	S8	20	17	85	0	1.1	0.5	1.2
96881	7.6S	111.5E	110	S	25	0	0	16	5.7	5.7	8.1
97378	10.7S	123.1E	1	MS	47	44	94	0	1.6	-12.5	12.6

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
06685	47.0N	9.1E	515	MS	120	0	0	4	1.0	6.3	6.4
10557	50.5N	11.1E	845	S8	364	364	100	0			
12140	54.4N	18.7E	2	MS	118	0	0	0	0.5	7.9	7.9
13269	44.3N	19.9E	176	MS	121	0	0	0	0.7	8.4	8.4
14554	44.9N	18.4E	140	S	59	3	5	0	0.8	-13.1	13.1
14650	43.8N	18.0E	972	S	59	59	100	0			
15140	46.5N	22.4E	500	S8	25	22	88	0	0.9	0.6	1.1
15284	45.6N	26.4E	1632	S8	46	1	2	15	3.0	4.0	5.0
17092	39.8N	39.5E	1218	S8	122	0	0	0	1.2	7.3	7.4
17203	38.9N	40.5E	1177	S8	117	0	0	0	1.0	8.1	8.2

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89004	71.7S	2.8W	815	MS	86	0	0	0	2.4	-7.5	7.9
89208	90.0S	0.0W	2835	M	34	20	59	0	0.5	-0.4	0.6
89263	66.0S	66.1W	20	M	239	0	0	0	1.7	8.7	8.9
89264	71.4S	68.9W	780	S	265	0	0	0	1.7	7.8	8.0
89266	72.2S	60.3W	91	S	262	186	71	0	4.9	-12.3	13.2
89272	74.8S	71.5W	1369	S	249	249	100	0			
89612	66.3S	110.8E	390	S	251	251	100	0			
89637	69.9S	130.0E	2560	S	193	5	3	0	2.1	11.9	12.1
89661	73.1S	169.6E	200	S	79	0	0	0	2.1	8.0	8.3
89666	76.7S	163.0E	200	S	73	73	100	0			
89744	74.0S	43.0E	3353	S	281	0	0	0	0.6	7.8	7.8
89769	78.5S	168.4E	50	S	398	398	100	0			
89847	67.6S	146.0E	30	S	311	1	0	0	1.9	-8.2	8.4

TABLE 4A

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAH	1852	0	43	1.3	0.6	1837	0	44	0	6.2	0.8
AAL	5590	1	30	1.5	0.2	5576	0	30	0	7.2	0.6
AAR	1532	0	7	1.7	-0.5	1523	1	9	0	8.9	0.4
ACA	2948	1	12	2.1	0.2	2940	0	10	0	7.9	0.6
ACI	29	3	59	1.0	0.4	29	0	55	0	5.9	-0.7
AEA	849	0	3	1.5	0.7	828	0	5	0	8.0	0.5
AEL	467	4	17	2.5	-0.4	456	0	10	0	8.8	0.3
AFL	598	1	3	1.9	0.7	595	0	3	0	7.8	1.0
AFR	1510	1	8	1.8	0.3	1523	0	8	0	7.9	0.6
AIH	349	0	4	1.6	0.0	341	0	4	0	7.4	1.0
AJM	245	1	5	1.7	0.7	240	0	3	0	6.6	0.7
ALM	46	0	4	1.3	0.9	46	0	7	0	11.0	2.5
AMM	156	0	3	1.8	0.9	154	1	9	0	11.4	0.7
AMT	715	0	44	2.1	1.2	723	0	45	0	8.1	0.2
AMX	380	2	5	1.7	0.2	377	1	7	0	11.2	0.1
ANA	890	0	10	1.5	0.7	895	0	12	0	7.2	1.1
ANZ	5700	0	37	1.4	0.3	5699	0	38	0	7.1	1.0
AVA	452	1	3	1.8	0.9	448	1	3	0	7.4	0.9
AVE	287	2	6	1.7	0.9	286	0	7	0	11.2	1.7
AVN	135	0	49	1.0	0.0	133	2	50	0	8.9	0.3
AXF	39	0	28	0.8	0.2	39	0	36	0	11.7	-1.1
AZA	546	11	33	4.7	2.9	541	1	6	0	10.2	1.0
BAF	29	0	3	1.2	-0.5	29	0	7	0	11.8	0.7
BAL	251	0	7	1.4	0.2	252	0	7	0	7.4	0.5
BAW	933	0	8	1.8	0.0	932	0	9	0	6.7	0.9
BLX	50	0	4	1.0	0.0	49	0	6	0	7.1	-0.2
BWA	352	1	57	1.8	1.1	347	0	8	0	8.7	1.4
CAL	175	1	4	1.7	0.5	182	1	7	0	8.8	0.4
CCA	307	1	15	2.2	0.7	347	0	100	0	13.2	0.3
CES	330	1	6	1.9	0.6	332	1	7	0	8.9	0.5
CFC	42	2	24	3.5	1.1	45	0	11	0	8.1	2.5
CFG	1057	1	6	1.5	-0.4	1051	1	6	0	7.0	0.7
CGB	29	0	0	1.5	-0.1	29	0	0	0	5.9	0.4
CKS	163	0	39	1.2	0.6	163	0	40	0	7.0	1.3
CLX	396	1	3	1.6	-0.4	400	0	4	0	6.2	0.5
CMI	59	0	15	1.1	0.5	63	0	14	0	7.1	0.9
CMM	630	0	11	1.5	-0.1	624	0	11	0	7.7	1.2
COA	912	0	41	1.3	0.0	910	0	41	0	7.0	1.1
CPA	22	0	23	1.1	0.4	22	0	27	0	11.0	0.0
CRL	376	1	8	1.8	0.6	372	0	8	0	8.2	1.2
CSN	132	2	8	1.6	0.5	134	1	8	0	8.3	1.2
CUB	224	4	5	1.9	1.1	224	0	4	0	9.0	1.2
DAL	3383	0	42	1.5	-0.1	3406	0	42	0	7.2	0.7
DCE	70	0	6	1.7	0.4	68	3	10	0	6.8	0.9
DLH	1512	0	9	1.6	0.1	1499	0	10	0	7.1	0.7
EDW	29	0	0	1.0	0.2	29	0	0	0	7.1	-0.9
EIA	359	1	38	2.0	0.2	354	1	49	0	14.2	2.8
ELY	96	1	2	1.6	-0.3	101	3	3	0	6.7	1.0
ETH	30	0	3	1.1	0.2	31	0	6	0	8.5	-0.8
EVA	513	0	5	1.5	0.0	523	0	6	0	8.0	0.1
EWW	85	0	9	1.8	0.3	89	2	17	0	13.1	4.5
FDX	1833	0	42	1.5	0.6	1844	0	43	0	8.5	0.4
FIN	308	0	4	1.7	0.2	298	0	4	0	7.7	0.9
FJI	791	1	46	1.5	0.4	766	0	46	0	8.1	0.5
FOM	574	0	32	1.4	-0.1	568	0	33	0	7.5	1.0
GAF	35	0	11	2.4	-0.1	35	0	9	0	11.9	1.4
GCO	171	1	8	1.7	-0.2	176	0	100	0	15.1	3.9
GHA	94	0	5	1.3	-0.2	93	0	5	0	9.9	1.3
GHO	66	0	30	2.6	-0.5	65	0	29	0	8.7	1.9

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GIA	26	4	12	1.4	1.0	27	0	7	0	4.8	0.7
GRL	31	0	0	1.1	0.4	31	0	0	0	4.6	0.9
GTI	322	1	8	1.9	0.1	338	0	9	0	8.6	1.0
HAL	3546	0	39	1.3	0.3	3493	0	40	0	8.7	1.5
HBI	28	0	25	1.2	0.3	28	0	25	0	3.8	0.7
HVN	57	0	0	1.5	0.7	54	0	0	0	4.6	0.5
IBE	3526	0	6	1.7	0.8	3456	0	8	0	9.0	0.7
ICE	1185	0	3	1.6	0.1	1104	1	5	0	8.4	1.1
IWD	264	1	4	1.1	-0.4	259	0	6	0	9.4	1.6
JAA	73	1	7	2.5	0.8	72	0	6	0	7.1	2.0
JAL	3531	0	4	1.7	0.3	3530	0	4	0	7.8	0.7
JAZ	1094	0	4	1.9	1.1	1085	0	4	0	7.7	0.7
JKK	317	0	6	1.2	0.0	276	0	7	0	6.8	0.5
JMC	86	0	6	1.4	-0.4	84	0	5	0	5.4	0.9
KAI	39	3	28	1.9	1.5	40	0	25	0	9.1	2.3
KAL	2850	1	10	1.8	0.3	2867	0	10	0	8.4	0.5
KIW	31	0	48	2.2	1.3	29	0	45	0	4.9	0.7
KLM	1994	0	6	1.5	0.2	1995	0	7	0	7.0	0.7
LAN	100	3	100	3.1	1.2	104	2	100	0	12.9	3.5
LAP	88	2	49	2.0	0.8	88	0	48	0	7.1	-0.9
LDA	79	0	0	0.9	0.2	77	0	3	0	8.5	0.2
LDI	301	12	38	4.9	3.1	303	1	7	0	9.9	0.5
LIB	627	1	11	1.6	0.9	630	1	11	0	8.1	1.6
LOB	39	3	28	2.5	-2.3	42	0	26	0	8.8	1.5
LOT	109	1	5	2.2	-1.2	106	0	4	0	6.5	-0.3
LTU	968	1	6	1.5	0.0	956	0	6	0	7.2	0.8
MAS	471	0	8	1.6	0.1	483	0	10	0	8.6	0.5
MAU	20	0	0	0.7	0.3	20	0	0	0	7.1	2.9
MON	121	0	2	1.7	0.4	113	0	4	0	8.3	0.7
MPD	479	0	3	1.2	0.1	475	0	4	0	7.9	0.7
MPH	684	0	3	1.5	-0.5	688	0	4	0	9.1	0.2
NCA	755	0	3	2.1	0.3	749	0	3	0	7.6	0.2
NWA	8531	0	10	1.6	0.4	8526	0	10	0	8.2	0.4
NZL	4074	0	12	1.3	0.1	4074	0	12	0	5.2	0.9
OAE	116	2	36	1.3	-0.1	116	0	38	0	9.9	0.5
PAC	420	0	30	1.6	0.2	421	0	30	0	9.0	0.9
PAL	1314	0	7	1.5	0.3	1261	0	8	0	8.0	0.7
PAO	426	3	55	2.0	0.2	421	0	55	0	8.5	1.2
PIC	24	0	0	1.5	0.6	23	0	0	0	6.6	1.7
PUA	32	0	31	2.2	0.5	32	0	38	0	16.0	6.7
QFA	4786	0	57	1.5	0.5	4834	0	58	0	7.0	0.6
RAF	38	3	3	1.7	1.2	38	0	5	0	11.4	-0.6
RAM	48	0	2	1.6	-1.1	47	0	4	0	9.4	1.1
RCH	856	1	100	2.5	-0.3	857	0	100	0	12.1	1.0
RKA	34	0	0	0.9	-0.4	34	0	3	0	8.8	-0.7
RON	30	0	43	1.0	0.2	30	0	43	0	6.5	1.8
RRR	102	1	4	1.6	0.4	101	1	5	0	8.2	0.4
RYN	226	0	44	1.5	1.0	232	0	45	0	6.6	-0.4
RZO	321	0	2	1.8	-0.3	321	1	5	0	8.6	1.0
SAA	425	0	8	1.6	0.3	421	0	8	0	7.8	1.1
SIA	442	0	5	1.8	0.5	439	0	5	0	6.5	0.3
SLR	178	0	7	1.7	0.6	178	0	9	0	7.9	-0.5
SQC	51	0	0	1.5	0.5	50	0	0	0	5.9	0.2
SVA	39	0	8	2.1	0.0	39	8	13	0	7.5	1.0
TAM	55	4	35	3.0	0.5	58	2	100	0	15.4	5.1
TAP	717	0	2	1.4	-0.1	705	0	3	0	7.9	1.0
THA	137	0	7	1.3	0.0	137	0	17	0	12.4	0.7
THT	132	0	26	2.1	0.9	131	0	24	0	6.4	1.7
TSC	268	1	5	2.0	0.3	266	1	5	0	10.1	1.2

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TWA	675	0	43	1.4	0.1	676	0	42	0	6.3	0.6
UAL	154656	0	100	1.1	0.0	154580	0	100	0	4.9	0.5
UPS	1914	0	54	1.6	0.3	1920	0	54	0	8.3	0.3
USA	289	1	5	1.5	0.2	244	0	7	0	9.6	1.7
VIR	369	1	2	1.4	0.1	371	0	2	0	7.9	0.2
VPB	29	3	28	2.0	0.0	31	0	26	0	7.5	1.4
VRG	264	0	18	2.5	1.1	267	1	100	0	12.5	2.0
VVR	126	2	33	2.7	1.2	140	0	30	0	8.1	1.3
WOA	232	0	3	1.7	0.6	252	0	6	0	7.6	0.8
YSS	74	0	3	1.6	1.0	72	0	3	0	7.8	0.8
AU	41483	0	13	1.3	0.7	41487	0	13	0	5.3	0.6
EU	118860	0	32	1.2	0.3	118860	0	32	0	4.6	0.5
KL	5069	0	19	1.5	1.1	5050	0	19	0	5.1	0.8
LH	3122	0	7	1.6	1.2	3093	0	7	0	4.8	0.7
LN	24	0	42	1.5	0.6	23	4	48	0	10.6	4.8
MK	4611	0	31	1.7	1.3	4562	0	7	0	7.0	1.5
SA	7467	0	42	2.1	1.6	7459	0	8	0	6.4	1.0
SV	346	0	100	2.5	2.1	337	0	1	0	4.3	0.4
TN	91	0	19	1.8	0.2	93	1	22	0	7.4	1.5
WA	288	2	9	1.1	0.3	284	5	16	0	8.3	0.9
XX	4227	2	9	1.4	0.3	4202	0	10	0	9.3	0.8
N	639	0	22	2.2	0.9	645	0	22	0	7.9	1.2
US ACARS	859975	1	58	1.3	0.4	859965	0	57	0	5.3	0.7

TABLE 4B

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:1000.0 – 300.1 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP ≥ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	226	3	23	1.7	0.3	226	0	22	0	10.4	0.7
AAR	27	4	33	1.6	-0.8	27	0	30	0	5.2	2.1
ACI	26	8	58	0.7	0.4	28	7	57	0	8.4	2.8
AFR	79	0	9	1.8	0.7	75	0	11	0	12.1	0.9
ANZ	106	3	24	1.1	0.3	108	0	22	0	7.0	0.9
AXF	31	0	32	1.3	0.5	33	0	33	0	6.7	0.2
CAL	22	5	27	1.6	0.4	24	0	21	0	5.8	0.3
CFC	62	0	3	1.6	0.5	67	0	4	0	6.4	1.8
CFG	24	0	0	0.9	-0.1	24	0	8	0	9.5	0.4
COA	21	0	24	1.8	-0.3	21	0	29	0	6.8	-0.6
CRL	20	0	10	1.5	0.7	20	5	20	0	8.9	0.8
CUB	29	3	10	2.0	0.3	30	0	13	0	11.1	-0.5
DAL	232	2	56	1.4	0.2	234	0	54	0	6.5	0.1
DHL	40	5	45	6.1	-5.9	40	3	18	0	16.1	3.5
DLH	204	1	16	1.5	0.4	208	0	16	0	8.2	0.8
EVA	52	0	46	1.4	-0.6	51	0	47	0	6.0	1.3
EWW	60	2	8	2.0	0.5	63	2	8	0	9.8	0.9
FDX	648	0	27	1.6	0.8	663	0	29	0	10.4	0.5
GAF	21	0	0	1.3	0.6	21	0	5	0	9.7	2.0
GCO	204	0	4	1.5	0.2	211	0	100	0	16.3	4.0
HAL	80	3	41	2.3	0.1	80	0	40	0	9.0	2.1
IBE	42	2	26	2.5	0.9	42	0	31	0	12.2	2.3
ICE	41	0	5	1.9	-0.4	36	0	6	0	10.5	1.3
JAA	36	3	6	1.3	0.8	36	0	3	0	7.1	0.9
JAL	55	2	9	1.8	0.6	55	0	7	0	7.5	2.3
JAZ	86	1	6	2.3	1.4	88	0	2	0	6.5	0.1
KAL	46	0	22	2.6	0.4	46	0	20	0	9.0	1.0
KIW	29	0	34	3.1	1.5	31	0	26	0	6.5	-0.9
KLM	57	4	12	1.6	0.5	58	0	14	0	9.7	0.4
LAN	121	4	100	2.0	0.0	135	0	100	0	11.3	4.6
LIB	25	8	12	2.0	1.3	26	0	12	0	9.2	0.8
MAS	22	0	32	3.4	1.8	24	0	29	0	5.1	1.0
MPH	31	0	3	0.9	0.4	31	0	6	0	9.4	-0.1
NCA	137	0	1	1.9	-0.3	133	0	2	0	6.6	0.3
NWA	178	2	17	1.6	0.4	180	1	16	0	7.3	-0.7
NZL	20907	0	58	1.4	0.3	20907	0	58	0	5.0	0.5
PAL	44	2	14	1.0	-0.3	40	0	13	0	5.2	-0.6
QFA	144	9	48	1.6	0.2	144	0	42	0	7.2	1.0
RCH	203	3	100	3.4	-1.0	211	1	100	0	13.1	1.3
RRR	94	3	15	3.1	1.9	93	0	13	0	10.2	0.3
SAA	49	0	0	0.9	-0.1	47	0	4	0	7.0	-0.8
SIA	41	0	2	1.8	0.3	42	0	0	0	5.2	-0.3
SKI	36	3	14	2.4	0.1	37	0	27	0	8.2	1.6
UAL	254541	0	100	1.3	0.0	254189	0	100	0	4.4	0.2
UPS	165	1	32	1.7	0.5	165	0	32	0	8.0	0.1
VTA	28	0	14	4.2	-2.0	40	0	3	0	6.9	1.0
VVP	45	9	42	3.9	0.1	44	0	32	0	10.8	0.0
VVR	61	8	38	2.3	-1.4	67	0	33	0	8.2	0.0
WOA	46	0	2	1.8	0.6	48	0	4	0	8.1	-0.4
AU	27762	0	49	1.2	0.4	27769	0	49	0	4.5	0.0
EU	573200	0	69	1.1	0.3	572544	0	69	0	3.9	0.0
KL	4058	0	54	1.3	1.0	4043	0	54	0	4.1	0.5
LH	1047	0	60	1.1	0.5	1040	0	61	0	3.8	0.4
MK	3431	0	63	1.6	0.7	3409	0	52	0	4.5	0.4
SA	4524	0	68	1.9	0.7	4526	0	58	0	5.4	0.9
SV	583	0	100	2.7	2.5	571	0	51	0	4.6	1.3
WA	37	14	27	1.8	0.0	37	5	27	0	14.1	2.5
XX	756	6	13	1.7	0.1	751	1	13	0	11.5	1.8
US ACARS	1545543	0	77	1.3	0.3	1540766	0	77	0	4.4	0.2

Figure 3a. AIRCRAFT 300 - 150 hPa mean daily count. OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 41747

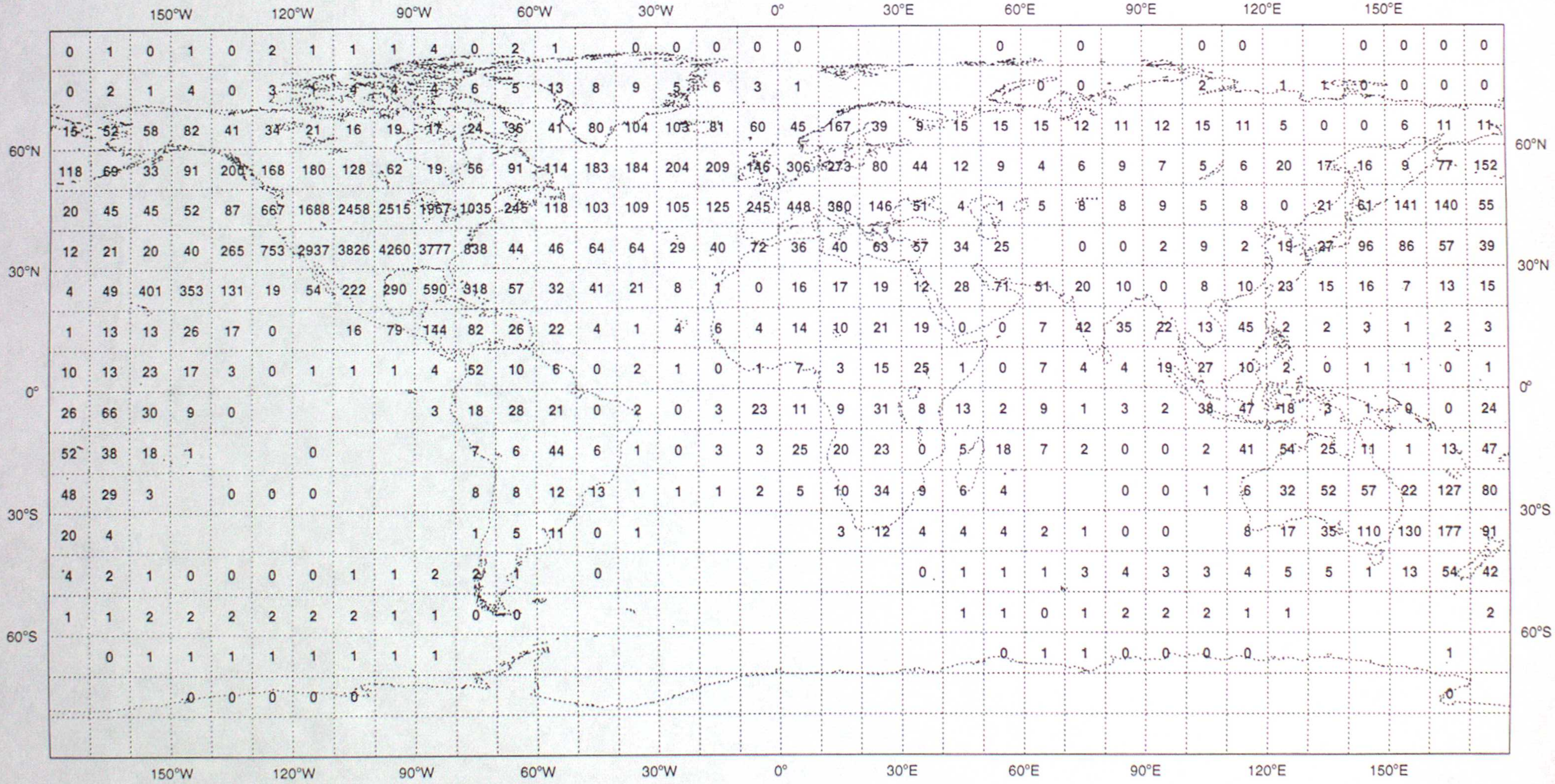
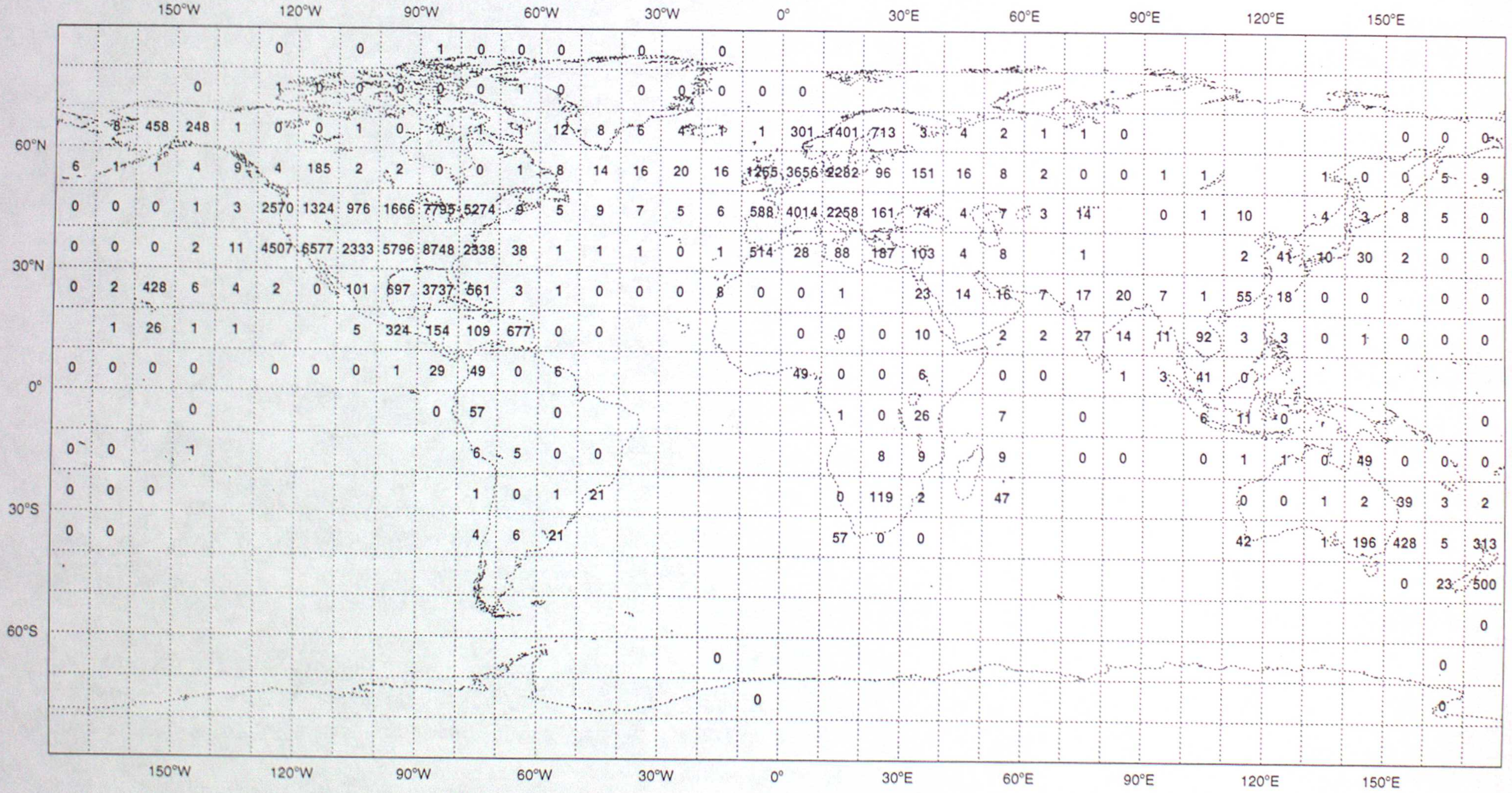

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
0 1 0 1 0 2 1 1 1 4 0 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0
0 2 1 4 0 3 4 4 4 4 6 5 13 8 9 5 6 3 1 0 0 2 1 1 0 0 0 0
15 52 58 82 41 34 21 16 19 17 24 36 41 80 104 103 81 60 45 167 39 9 15 15 15 12 11 12 15 11 5 0 0 6 11 11
118 69 33 91 200 168 180 128 62 19 56 91 114 183 184 204 209 146 306 273 80 44 12 9 4 6 9 7 5 6 20 17 16 9 77 152
20 45 45 52 87 667 1688 2458 2515 1967 1035 245 118 103 109 105 125 245 448 380 146 51 4 1 5 8 8 9 5 8 0 21 61 141 140 55
12 21 20 40 265 753 2937 3826 4260 3777 838 44 46 64 64 29 40 72 36 40 63 57 34 25 0 0 2 9 2 19 27 96 86 57 39
4 49 401 353 131 19 54 222 290 590 318 57 32 41 21 8 1 0 16 17 19 12 28 71 51 20 10 0 8 10 23 15 16 7 13 15
1 13 13 26 17 0 16 79 144 82 26 22 4 1 4 6 4 14 10 21 19 0 0 7 42 35 22 13 45 2 2 3 1 2 3
10 13 23 17 3 0 1 1 1 4 52 10 6 0 2 1 0 1 7 3 15 25 1 0 7 4 4 19 27 10 2 0 1 1 0 1
26 66 30 9 0 3 18 28 21 0 2 0 3 23 11 9 31 8 13 2 9 1 3 2 38 47 18 3 1 0 0 24
52 38 18 1 0 7 6 44 6 1 0 3 3 25 20 23 0 5 18 7 2 0 0 2 41 54 25 11 1 13 47
48 29 3 0 0 0 8 8 12 13 1 1 1 2 5 10 34 9 6 4 0 0 1 6 32 52 57 22 127 80
20 4 1 5 11 0 1 3 12 4 4 4 2 1 0 0 8 17 35 110 130 177 91
4 2 1 0 0 0 0 1 1 2 2 1 0 0 1 1 1 3 4 3 3 4 5 5 1 13 54 42
1 1 2 2 2 2 2 2 1 1 0 0 1 1 0 1 2 2 2 1 1 2
0 1 1 1 1 1 1 1 1 0 1 1 0 0 0 0 1
0 0 0 0 0 0

Figure 3b. AIRCRAFT 1000 - 301 hPa mean daily count. OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 78545



150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
0 0 1 0 0 0 0 0
0 1 0 0 0 0 1 0 0 0 0 0 0 0
8 458 248 1 0 0 1 0 0 1 1 12 8 6 4 1 1 301 1401 713 3 4 2 1 1 0 0 0 0
6 1 1 4 9 4 185 2 2 0 0 1 8 14 16 20 16 1265 3656 2282 96 151 16 8 2 0 0 1 1 1 0 0 5 9
0 0 0 1 3 2570 1324 976 1666 7795 5274 9 5 9 7 5 6 588 4014 2258 161 74 4 7 3 14 0 1 10 4 3 8 5 0
0 0 0 2 11 4507 6577 2333 5796 8748 2338 38 1 1 1 0 1 514 28 88 187 103 4 8 1 2 41 10 30 2 0 0
0 2 428 6 4 2 0 101 697 3737 561 3 1 0 0 0 8 0 0 1 23 14 16 7 17 20 7 1 55 18 0 0 0 0
1 26 1 1 5 324 154 109 677 0 0 0 0 0 10 2 2 27 14 11 92 3 3 0 1 0 0 0
0 0 0 0 0 0 0 1 29 49 0 6 49 0 0 6 0 0 1 3 41 0
0 0 57 0 1 0 26 7 0 6 11 0 0
0 0 1 6 5 0 0 8 9 9 0 0 0 1 1 0 49 0 0 0
0 0 0 1 0 1 21 0 119 2 47 0 0 1 2 39 3 2
0 0 4 6 21 57 0 0 42 1 196 428 5 313
0 23 500
0
0
0
0 0

Figure 4a. AIRCRAFT 300 - 150 hPa mean winds. OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

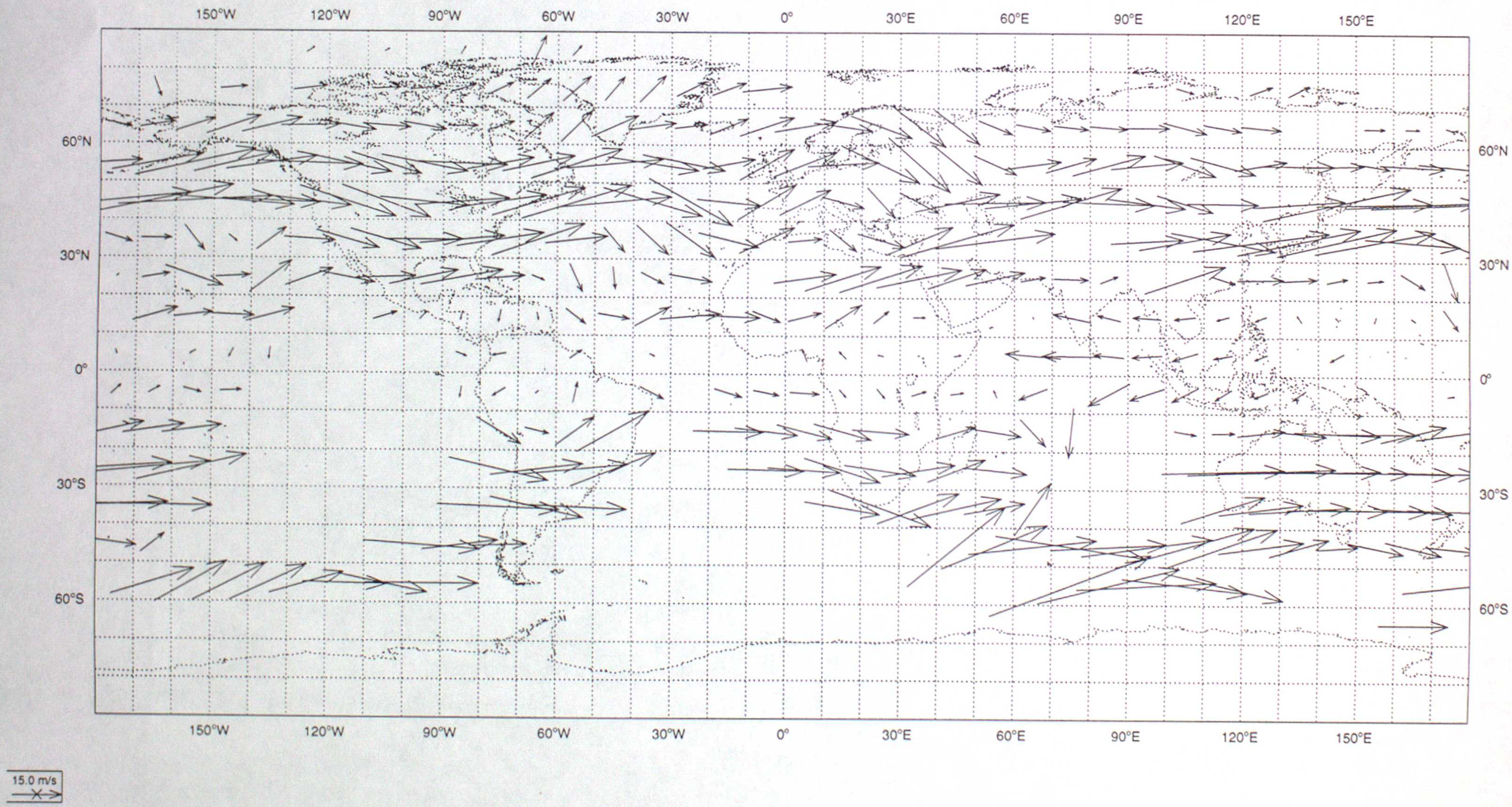

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 4b. AIRCRAFT 1000 - 301 hPa mean winds. OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

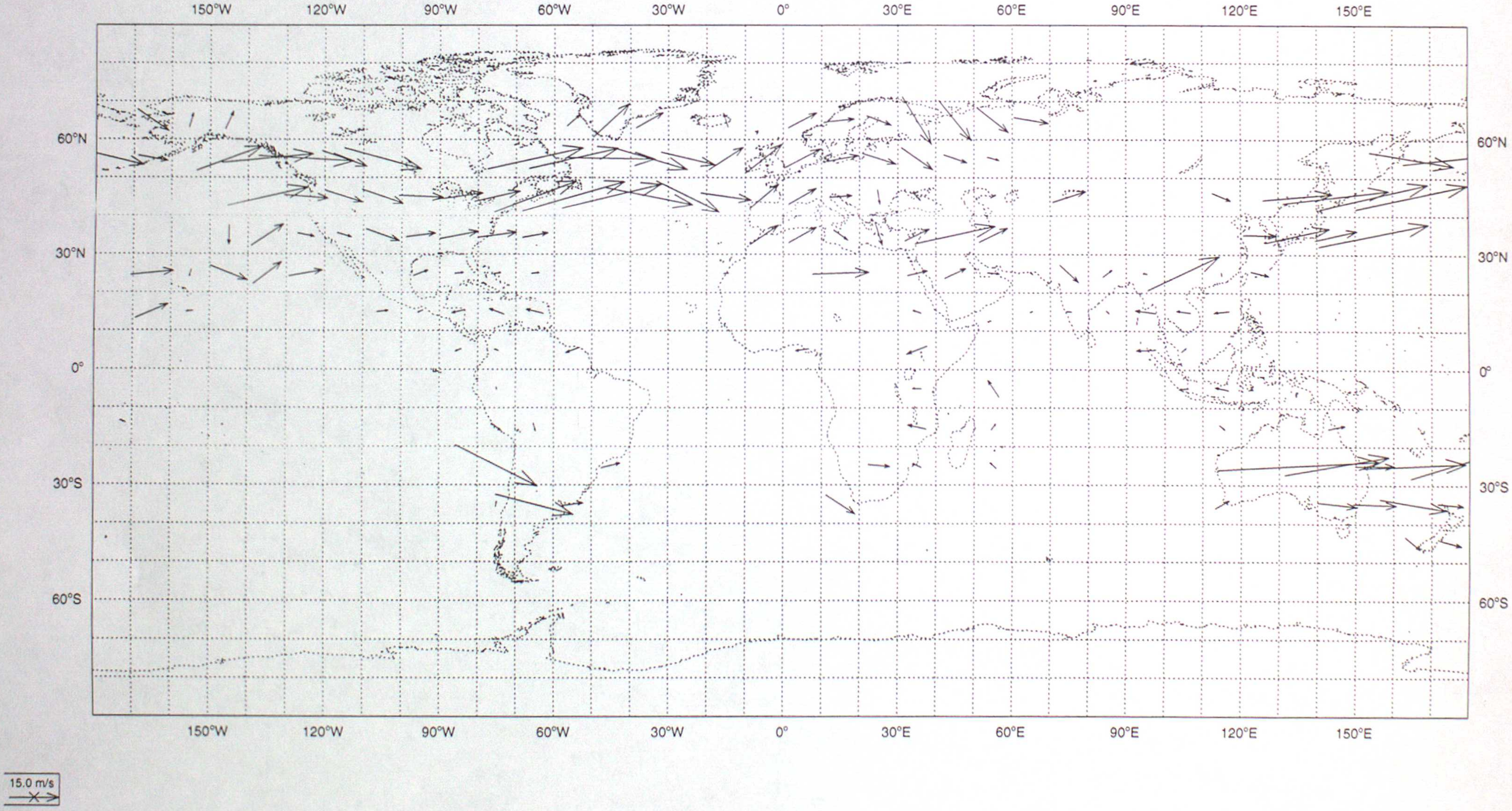

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 5a. AIRCRAFT 300 - 150 hPa mean O-B winds. OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

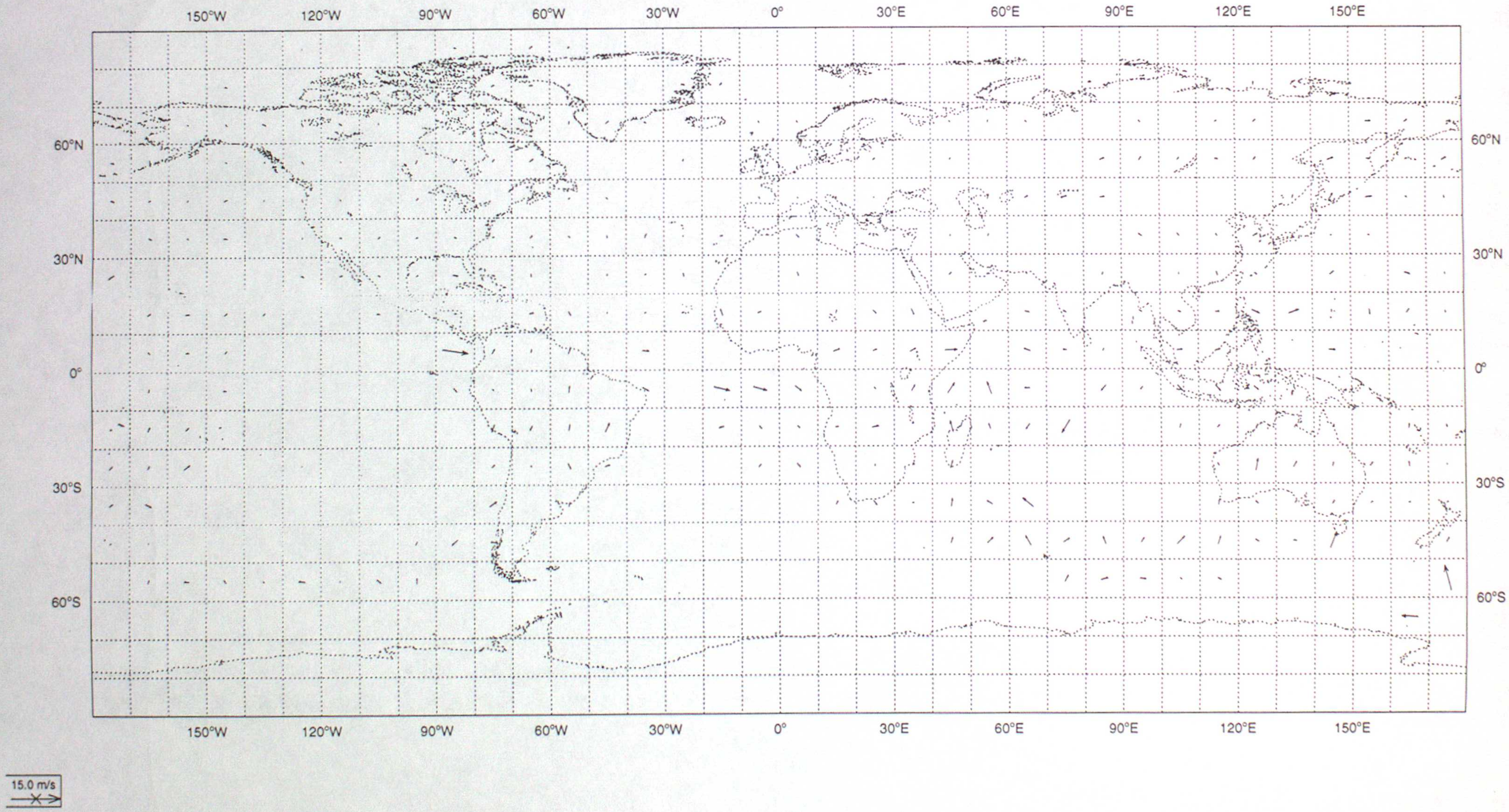

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 5b. AIRCRAFT 1000 - 301 hPa mean O-B winds. OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

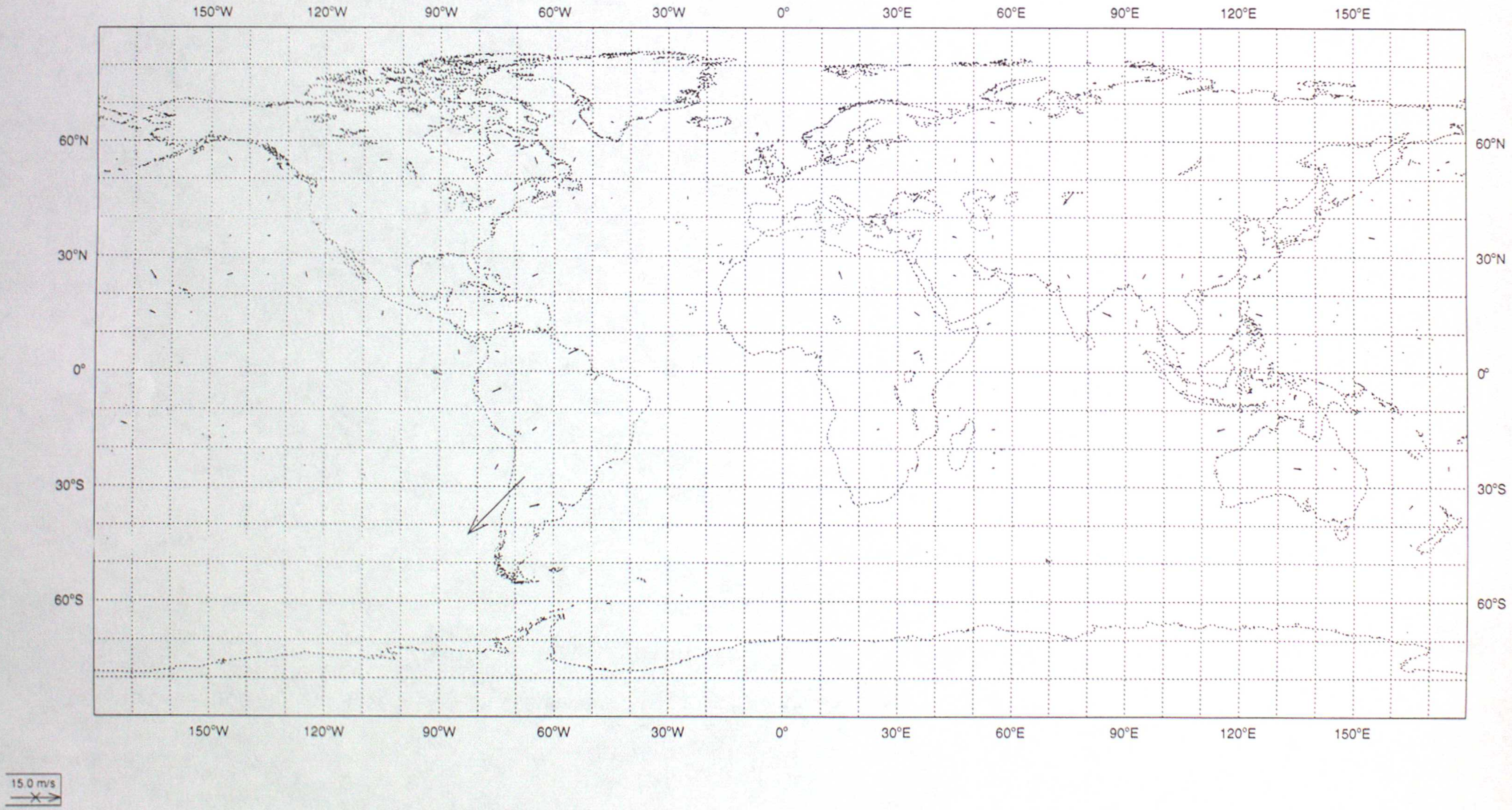

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 6a. AIRCRAFT 300 - 150 hPa mean O-B speeds (ms-1). OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

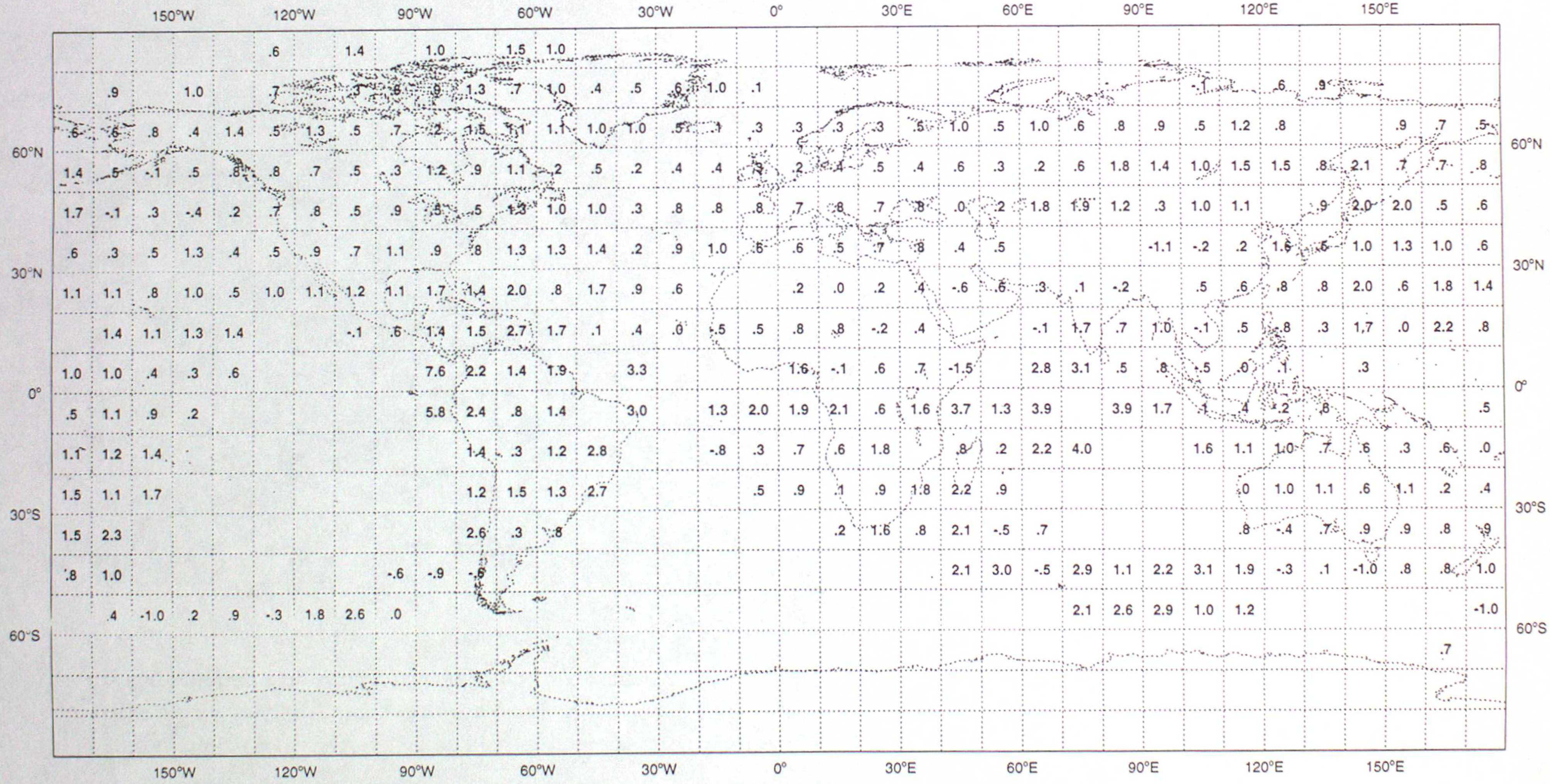

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
.6 1.4 1.0 1.5 1.0
.9 1.0 .7 .3 .6 .9 1.3 .7 1.0 .4 .5 .6 1.0 .1 -.1 .6 .9
.6 .6 .8 .4 1.4 .5 1.3 .5 .7 .2 1.5 1.1 1.1 1.0 1.0 .5 .1 .3 .3 .3 .3 .6 1.0 .5 1.0 .6 .8 .9 .5 1.2 .8 .9 .7 .5
1.4 .5 -.1 .5 .8 .8 .7 .5 .3 1.2 .9 1.1 .2 .5 .2 .4 .4 .3 .2 .4 .5 .4 .6 .3 .2 .6 1.8 1.4 1.0 1.5 1.5 .8 2.1 .7 .7 .8
1.7 -.1 .3 -.4 .2 .7 .8 .5 .9 .5 .5 1.3 1.0 1.0 .3 .8 .8 .8 .7 .8 .7 .8 .0 .2 1.8 1.9 1.2 .3 1.0 1.1 .9 2.0 2.0 .5 .6
.6 .3 .5 1.3 .4 .5 .9 .7 1.1 .9 .8 1.3 1.3 1.4 .2 .9 1.0 .6 .6 .5 .7 .8 .4 .5 -1.1 -.2 .2 1.6 .5 1.0 1.3 1.0 .6
1.1 1.1 .8 1.0 .5 1.0 1.1 1.2 1.1 1.7 1.4 2.0 .8 1.7 .9 .6 .2 .0 .2 .4 -.6 .6 .3 .1 -.2 .5 .6 .8 .8 2.0 .6 1.8 1.4
1.4 1.1 1.3 1.4 -.1 .6 1.4 1.5 2.7 1.7 .1 .4 .0 -.5 .5 .8 .8 -.2 .4 -.1 1.7 .7 1.0 -.1 .5 .8 .3 1.7 .0 2.2 .8
1.0 1.0 .4 .3 .6 7.6 2.2 1.4 1.9 3.3 1.6 -.1 .6 .7 -1.5 2.8 3.1 .5 .8 -.5 .0 .1 .3
.5 1.1 .9 .2 5.8 2.4 .8 1.4 3.0 1.3 2.0 1.9 2.1 .6 1.6 3.7 1.3 3.9 3.9 1.7 .1 .4 .2 .8 .5
1.1 1.2 1.4 1.4 .3 1.2 2.8 -.8 .3 .7 .6 1.8 .8 .2 2.2 4.0 1.6 1.1 1.0 .7 .6 .3 .6 .0
1.5 1.1 1.7 1.2 1.5 1.3 2.7 .5 .9 .1 .9 1.8 2.2 .9 .0 1.0 1.1 .6 1.1 .2 .4
1.5 2.3 2.6 .3 .8 .2 1.6 .8 2.1 -.5 .7 .8 -.4 .7 .9 .9 .8 .9
.8 1.0 -.6 -.9 -.6 2.1 3.0 -.5 2.9 1.1 2.2 3.1 1.9 -.3 .1 -1.0 .8 .8 1.0
.4 -1.0 .2 .9 -.3 1.8 2.6 .0 2.1 2.6 2.9 1.0 1.2 -1.0
.7

Figure 6b. AIRCRAFT 1000 - 301 hPa mean O-B speeds (ms-1). OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

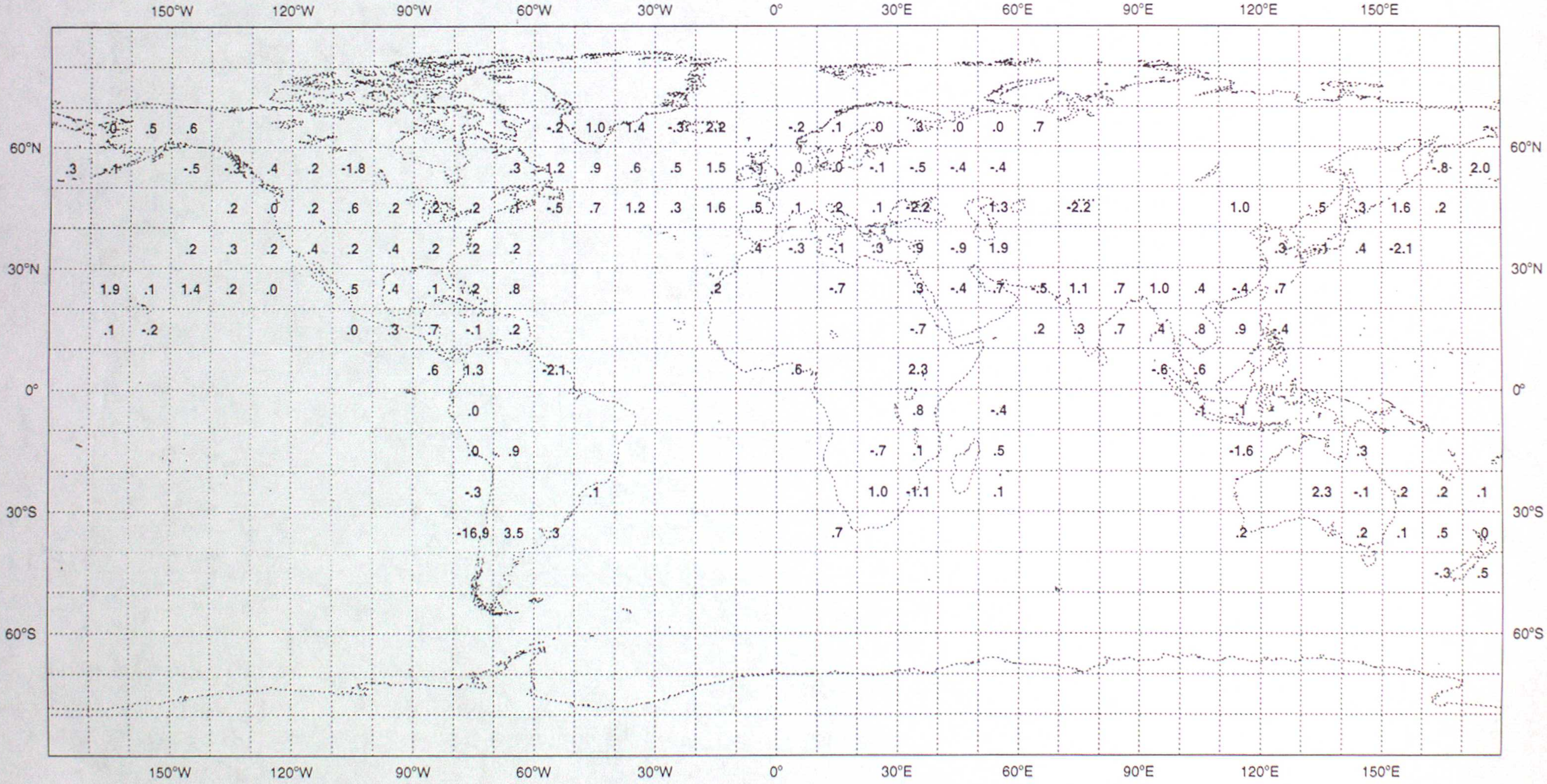

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.0 .5 .6 -.2 1.0 1.4 -.3 2.2 -.2 .1 .0 .3 .0 .0 .7
.3 -.5 .4 .2 -1.8 .3 1.2 .9 .6 .5 1.5 .0 .0 -.1 -.5 -.4 -.4 -.8 2.0
.2 .0 .2 .6 .2 .2 .2 -.5 .7 1.2 .3 1.6 .5 .1 .2 .1 2.2 1.3 -2.2 1.0 .5 .3 1.6 .2
.2 .3 .2 .4 .2 .4 .2 .2 .2 .4 -.3 -.1 .3 .9 -.9 1.9 .3 .1 .4 -2.1
1.9 .1 1.4 .2 .0 .5 .4 .1 .2 .8 .2 -.7 .3 -.4 .7 -.5 1.1 .7 1.0 .4 -.4 .7
.1 -.2 .0 .3 .7 -.1 .2 -.7 .2 .3 .7 .4 .8 .9 .4
.6 1.3 -2.1 .6 2.3 -.6 .6
.0 .8 -.4 .1 .1
.0 .9 -.7 .1 .5 -1.6 .3
-.3 .1 1.0 -1.1 .1 2.3 -.1 .2 .2 .1
-16.9 3.5 .3 .7 .2 .2 .1 .5 .0
-.3 .5

Figure 7a. AIRCRAFT 300 - 150 hPa RMS O-B vector (ms-1). OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

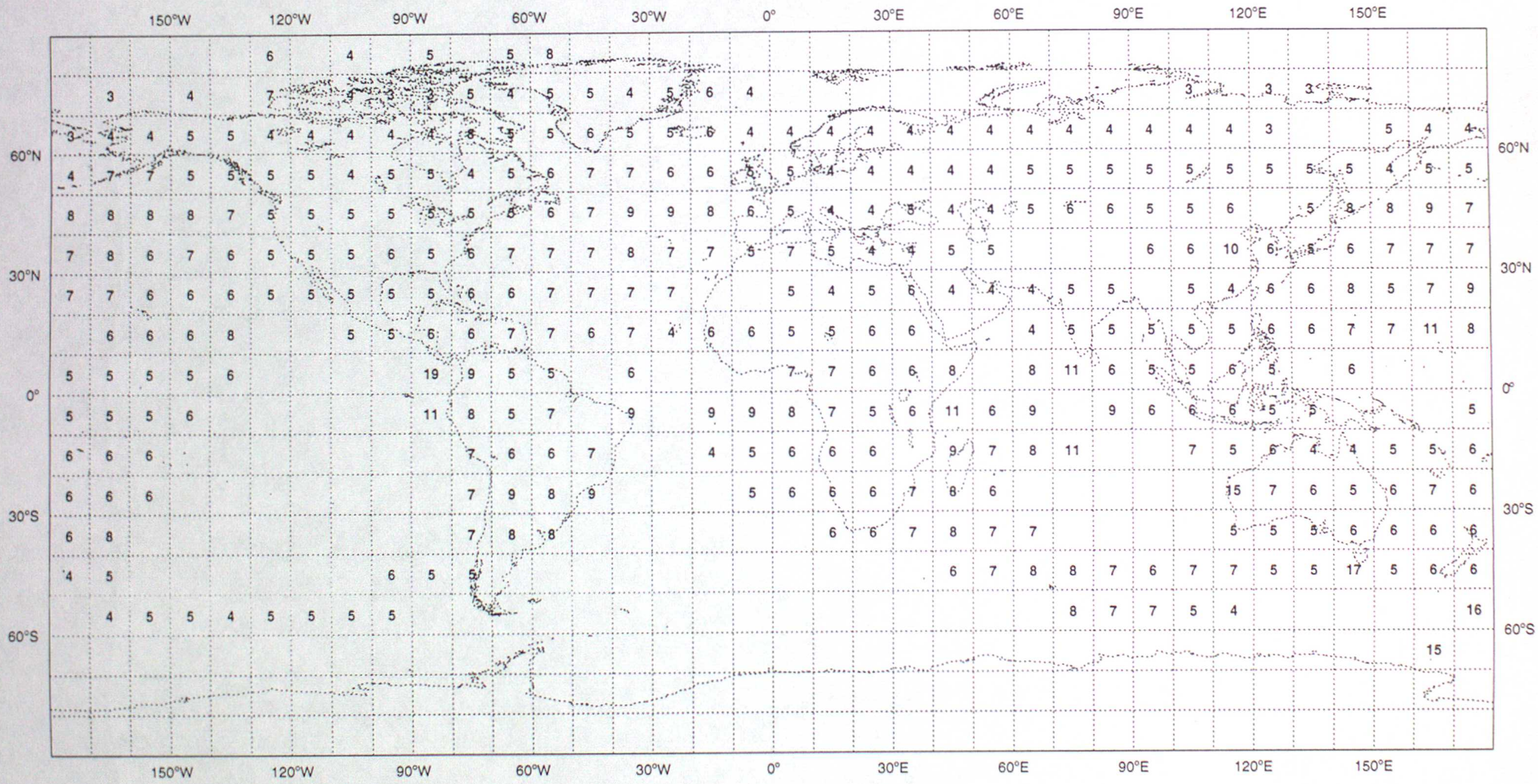

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
6 4 5 5 8
3 4 7 4 3 3 5 4 5 5 4 5 6 4 3 3 3
3 4 4 5 5 4 4 4 4 4 8 5 5 6 5 5 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 3 5 4 4
4 7 7 5 5 5 5 4 5 5 4 5 6 7 7 6 6 5 5 4 4 4 4 4 5 5 5 5 5 5 5 5 5 4 5 5
8 8 8 8 7 5 5 5 5 5 5 5 6 7 9 9 8 6 5 4 4 5 4 4 5 6 6 5 5 6 5 8 8 9 7
7 8 6 7 6 5 5 5 6 5 6 7 7 7 8 7 7 5 7 5 4 4 5 5 6 6 10 6 5 6 7 7 7
7 7 6 6 6 5 5 5 5 5 6 6 7 7 7 7 5 4 5 6 4 4 4 5 5 5 4 6 6 8 5 7 9
6 6 6 8 5 5 6 6 7 7 6 7 4 6 6 5 5 6 6 4 5 5 5 5 5 6 6 7 7 11 8
5 5 5 5 6 19 9 5 5 6 7 7 6 6 8 8 11 6 5 5 6 5 6
5 5 5 6 11 8 5 7 9 9 9 8 7 5 6 11 6 9 9 6 6 6 5 5 5
6 6 6 7 6 6 7 4 5 6 6 6 9 7 8 11 7 5 6 4 4 5 5 6
6 6 6 7 9 8 9 5 6 6 6 7 8 6 15 7 6 5 6 7 6
6 8 7 8 8 6 6 7 8 7 7 5 5 5 6 6 6 6
4 5 6 5 5 6 7 8 8 7 6 7 7 5 5 17 5 6 6
4 5 5 4 5 5 5 5 8 7 7 5 4 16
15

Figure 7b. AIRCRAFT 1000 - 301 hPa RMS O-B vector (ms-1). OCTOBER 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

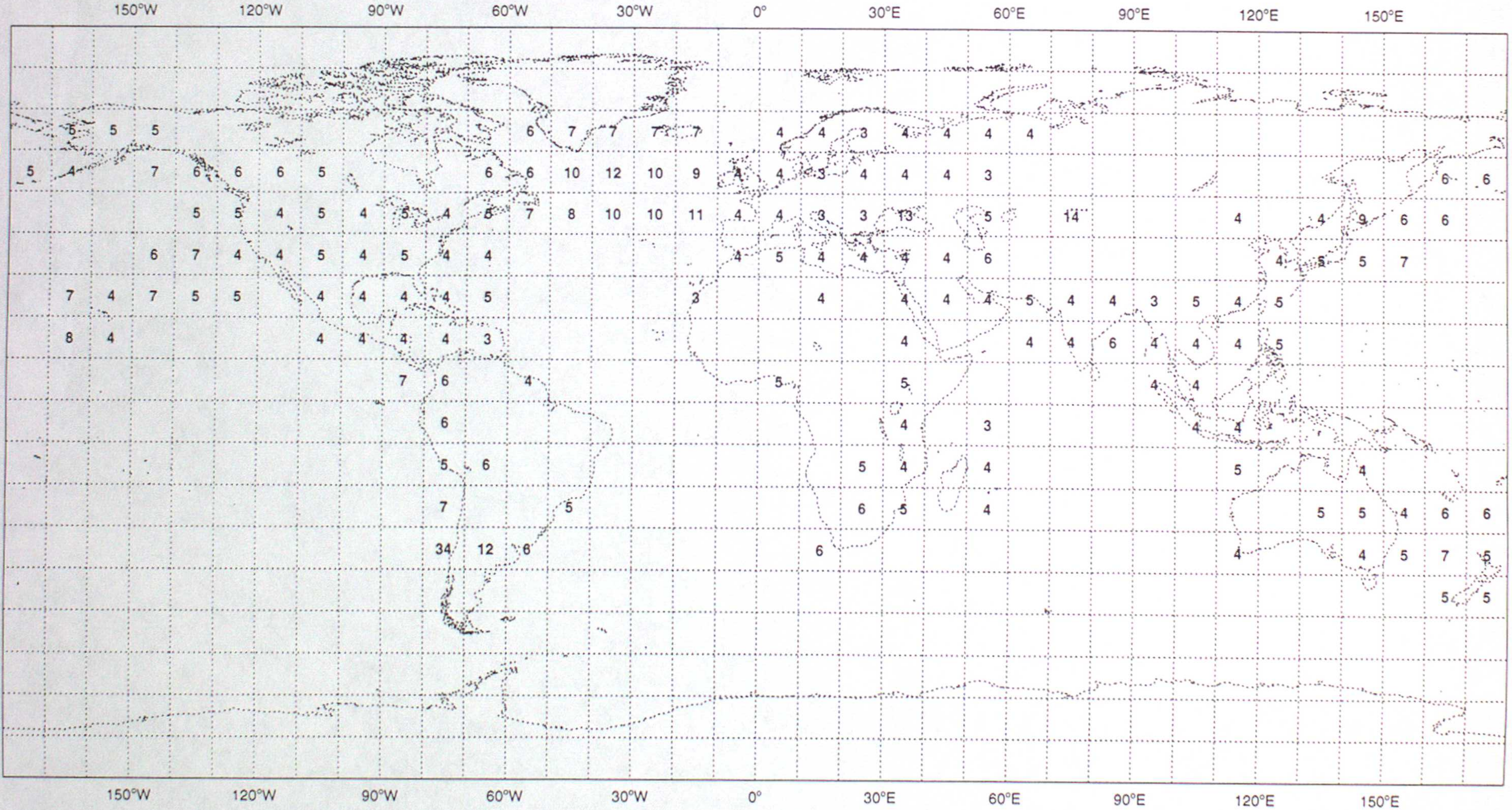

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
5 5 5 6 7 7 7 7 4 4 3 4 4 4 4
5 4 7 6 6 6 5 6 6 10 12 10 9 4 4 3 4 4 4 3 6 6
5 5 4 5 4 5 4 5 7 8 10 10 11 4 4 3 3 13 5 14 4 4 9 6 6
6 7 4 4 5 4 5 4 4 4 5 4 4 4 4 6 4 5 5 7
7 4 7 5 5 4 4 4 4 5 3 4 4 4 5 4 4 3 5 4 5
8 4 4 4 4 4 3 4 4 4 6 4 4 4 5
7 6 4 5 5 4 4
6 4 3 4 4
5 6 5 4 4 5 4
7 5 6 5 4 5 5 4 6 6
34 12 6 6 4 4 5 7 5
5 5

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown duringperiod.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
20674	12	Z	50	73/ 80	18	2	112.2	167.1	201.2	7
28722	12	Z	30	55/ 56	14	1	76.7	317.9	327.0	6
32098	00	Z	150	49/ 143	27	0	52.4	123.0	133.7	4
33345	00	Z	70	50/ 31	27	0	39.9	-126.9	133.0	5
33791	12	Z	200	48/ 33	22	0	29.6	-87.0	91.9	7
33837	00	Z	50	46/ 31	17	2	77.4	256.5	267.9	6
33946	00	Z	50	45/ 34	17	0	120.6	134.5	180.7	4
34247	12	Z	50	50/ 41	24	4	60.4	239.5	247.0	7
42101	12	Z	50	30/ 76	11	0	67.8	223.4	233.4	6
42314	00	Z	50	27/ 95	12	0	97.9	152.2	181.0	5
42339	00	Z	200	26/ 73	16	0	93.4	-9.8	93.9	6
42339	12	Z	100	26/ 73	11	0	127.7	3.3	127.7	4
42361	12	Z	100	26/ 78	13	0	107.9	-76.7	132.4	7
42369	00	Z	200	27/ 81	22	2	56.9	-60.9	83.3	6
42369	12	Z	200	27/ 81	18	0	94.7	-14.2	95.7	7
42410	00	Z	150	26/ 92	11	0	87.2	71.9	113.0	5
42492	00	Z	100	26/ 85	17	0	107.1	98.1	145.2	4
42647	00	Z	100	23/ 73	11	0	98.0	47.1	108.7	4
42647	12	Z	50	23/ 73	6	5	68.2	252.8	261.9	10
42667	12	Z	50	23/ 77	9	1	132.7	154.3	203.5	6
42701	00	Z	50	23/ 85	15	0	65.2	158.5	171.4	4
42809	00	Z	30	23/ 88	13	0	147.3	159.1	216.8	4
42971	00	Z	100	20/ 86	25	1	157.4	71.7	173.0	9
43003	00	Z	200	19/ 73	17	2	111.7	-52.4	123.4	6
43003	12	Z	50	19/ 73	9	2	139.2	121.4	184.7	9
43128	00	Z	150	17/ 78	24	0	74.4	-101.0	125.4	5
43185	00	Z	200	16/ 81	21	0	91.9	24.4	95.1	6
43185	12	Z	250	16/ 81	20	0	80.1	34.9	87.4	6
43192	00	Z	100	15/ 74	11	1	125.5	-173.7	214.3	6
43333	00	Z	30	12/ 93	12	0	96.8	168.2	194.1	6
43333	12	Z	150	12/ 93	25	0	76.9	-71.5	105.0	4
43346	00	Z	150	11/ 80	17	1	90.1	-133.5	161.1	6
43346	12	Z	50	11/ 80	17	1	128.0	100.2	162.5	4
43353	00	Z	150	10/ 76	15	0	99.8	-83.1	129.9	5
43371	00	Z	100	8/ 77	9	1	130.6	-36.4	135.6	5
47185	00	Z	30	33/ 126	22	1	83.9	205.5	222.0	4
78970	12	Z	50	11/ -61	24	0	24.3	166.7	168.4	4
82332	12	Z	50	-3/ -60	10	0	51.3	183.7	190.7	4
83612	00	Z	50	-20/ -55	11	0	28.2	152.0	154.6	4
83840	12	Z	70	-26/ -49	4	0	109.1	177.2	208.1	4
83971	12	Z	100	-30/ -51	5	0	79.7	137.0	158.5	6
89592	00	Z	70	-67/ 93	22	4	88.3	220.0	237.0	8
91366	00	Z	50	9/ 168	25	3	83.3	269.1	281.7	7

Figure 8. TEMP 500 hPa geopotential mean daily count. OCTOBER 2001
All hours
Global average number of observations in 24 hours = 1131

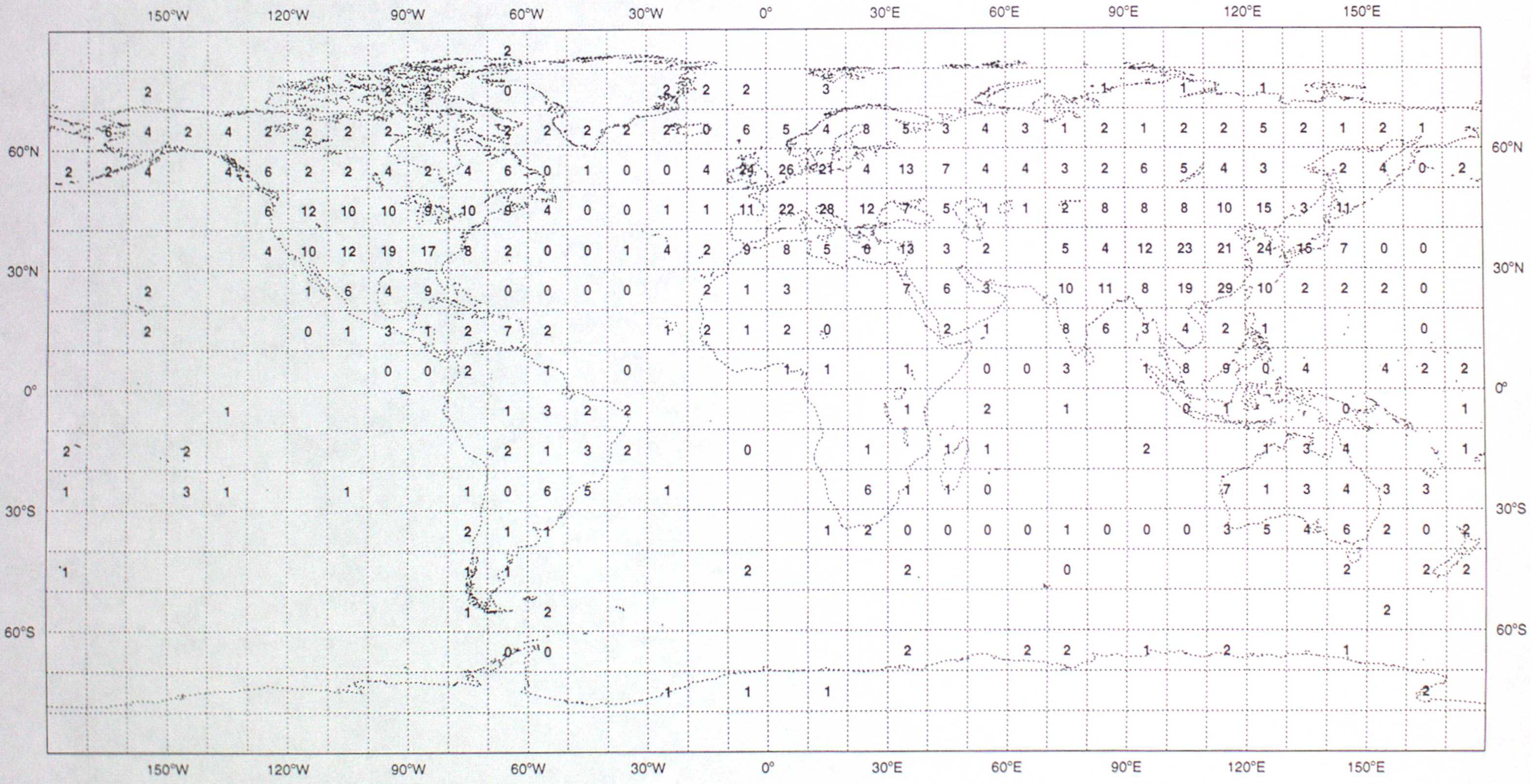

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
2
2 2 2 0 2 2 2 3 1 1 1
6 4 2 4 2 2 2 2 4 2 2 2 2 2 2 0 6 5 4 8 5 3 4 3 1 2 1 2 2 5 2 1 2 1
2 2 4 4 6 2 2 4 2 4 6 0 1 0 0 4 24 26 21 4 13 7 4 4 3 2 6 5 4 3 2 4 0 2
6 12 10 10 9 10 9 4 0 0 1 1 11 22 28 12 7 5 1 1 2 8 8 8 10 15 3 11
4 10 12 19 17 8 2 0 0 1 4 2 9 8 5 6 13 3 2 5 4 12 23 21 24 16 7 0 0
2 1 6 4 9 0 0 0 0 2 1 3 7 6 3 10 11 8 19 29 10 2 2 2 0
2 0 1 3 1 2 7 2 1 2 1 2 0 2 1 8 6 3 4 2 1 0
0 0 2 1 0 1 1 1 0 0 3 1 8 9 0 4 4 2 2
1 1 3 2 2 1 2 1 0 1 0 1
2 2 2 1 3 2 0 1 1 1 2 1 3 4 1
1 3 1 1 1 0 6 5 1 6 1 1 0 7 1 3 4 3 3
2 1 1 1 2 0 0 0 0 1 0 0 0 3 5 4 6 2 0 2
1 1 1 2 2 0 2 2 2
1 2 2
0 0 2 2 2 1 2 1
1 1 1 2

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

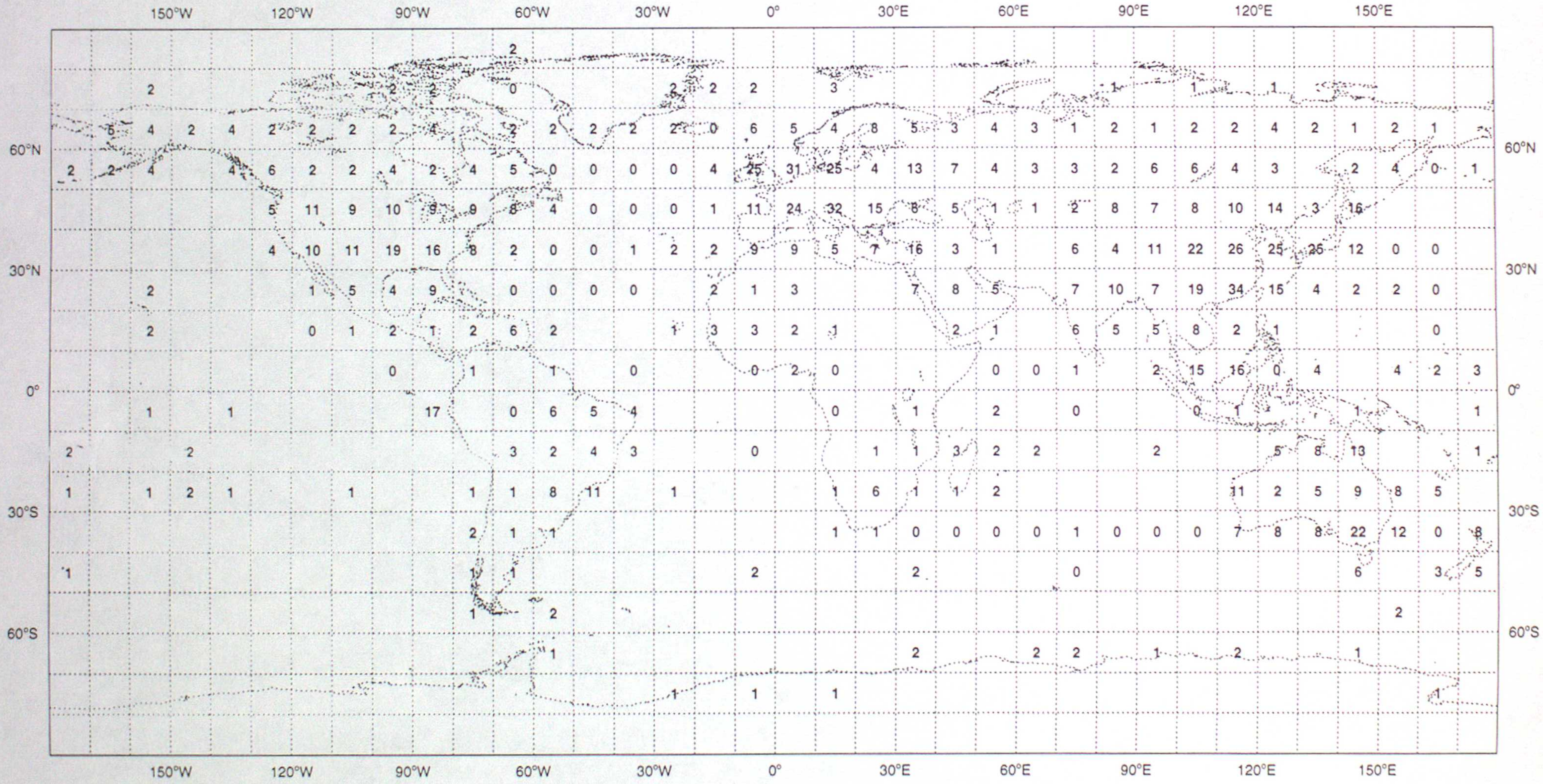
Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	: ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.	

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
FNOR	00	V	250	21/ -55	9	0	11	-1.0	-4.7	15.6	1
PSPIU	00	V	150	-5/ -81	27	0	100	2.0	7.9	23.2	2
PSPIU	12	V	150	-5/ -81	25	0	100	-2.9	2.5	21.0	2
07180	00	V	300	49/ 6	26	0	3	-1.6	1.2	15.7	1
41923	00	V	200	24/ 90	22	0	4	-3.2	4.3	16.7	1
42182	00	V	250	29/ 77	26	0	100	0.0	10.9	17.9	3
42182	12	V	150	29/ 77	16	0	100	1.8	6.1	18.5	4
42410	00	V	250	26/ 92	14	0	7	-2.9	4.3	15.6	1
42410	12	V	300	26/ 92	11	0	36	0.8	1.5	21.2	1
63985	00	V	150	-5/ 56	19	0	100	10.6	5.3	16.2	1
68263	12	V	150	-26/ 28	12	0	16	-6.1	-4.3	17.6	1
72233	00	V	200	30/ -90	28	0	3	-2.7	-1.1	16.5	2
83612	00	V	200	-20/ -55	12	0	100	4.3	-0.2	15.9	1
83612	12	V	200	-20/ -55	12	0	100	-1.1	-12.3	17.1	1
87344	12	V	150	-31/ -64	13	0	7	-9.6	-1.6	28.2	1
89009	00	V	250	-90/ 0	29	0	100	-1.2	-5.9	19.2	4
89009	12	V	300	-90/ 0	21	0	100	0.2	0.9	23.0	5
96935	00	V	300	-7/ 113	11	0	9	5.4	0.5	17.5	1

Figure 9. TEMP/PILOT 300 hPa wind mean daily count. OCTOBER 2001
All hours
Global average number of observations in 24 hours = 1322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60°N
30°N
0°
30°S
60°S
2
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5 4 2 4 2 2 2 2 4 2 2 2 2 2 0 6 5 4 8 5 3 4 3 1 2 1 2 2 4 2 1 2 1
2 2 4 4 6 2 2 4 2 4 5 0 0 0 0 4 25 31 25 4 13 7 4 3 3 2 6 6 4 3 2 4 0 1
5 11 9 10 9 9 8 4 0 0 0 1 11 24 32 15 8 5 1 1 2 8 7 8 10 14 3 16
4 10 11 19 16 8 2 0 0 1 2 2 9 9 5 7 16 3 1 6 4 11 22 26 25 26 12 0 0
2 1 5 4 9 0 0 0 0 2 1 3 7 8 5 7 10 7 19 34 15 4 2 2 0
2 0 1 2 1 2 6 2 1 3 3 2 1 2 1 6 5 5 8 2 1 0
0 1 1 0 0 2 0 0 0 1 2 15 16 0 4 4 2 3
1 1 17 0 6 5 4 0 1 2 0 0 1 1 1
2 2 3 2 4 3 0 1 1 3 2 2 2 5 8 13 1
1 1 2 1 1 1 1 8 11 1 1 6 1 1 2 11 2 5 9 8 5
2 1 1 1 1 0 0 0 0 1 0 0 0 7 8 8 22 12 0 8
1 1 1 2 2 0 6 3 5
1 2 2
1 2 2 2 1 2 1
1 1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS $\geq 10^\circ$, with
SD $< 30^\circ$, and
MAX SPREAD $< 10^\circ$

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
08594	12	DD	17/ -23	17	-15.0	7.2	16.9
17280	12	DD	38/ 40	28	-10.8	3.5	8.3
29612	12	DD	55/ 78	23	22.0	4.0	7.9
42182	00	DD	29/ 77	24	-15.0	3.7	18.8
42182	12	DD	29/ 77	22	-16.5	1.7	19.2
42667	12	DD	23/ 77	14	-20.4	4.2	15.2
42809	12	DD	23/ 88	19	11.1	5.2	20.2
43333	12	DD	12/ 93	15	10.2	8.1	24.5
48455	12	DD	14/ 101	16	21.7	8.3	28.2
58968	00	DD	25/ 122	23	13.0	2.0	9.8
60360	12	DD	37/ 8	16	17.2	6.3	20.8
62337	00	DD	31/ 34	29	-19.1	2.7	7.3
62337	12	DD	31/ 34	28	-20.6	3.8	7.8
83612	00	DD	-20/ -55	11	12.9	3.6	15.6

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: October 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES-8, GOES-10, METEOSAT-5, METEOSAT-7, GMS-5, INSAT.

Standard of comparison :Background field from UKMO global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

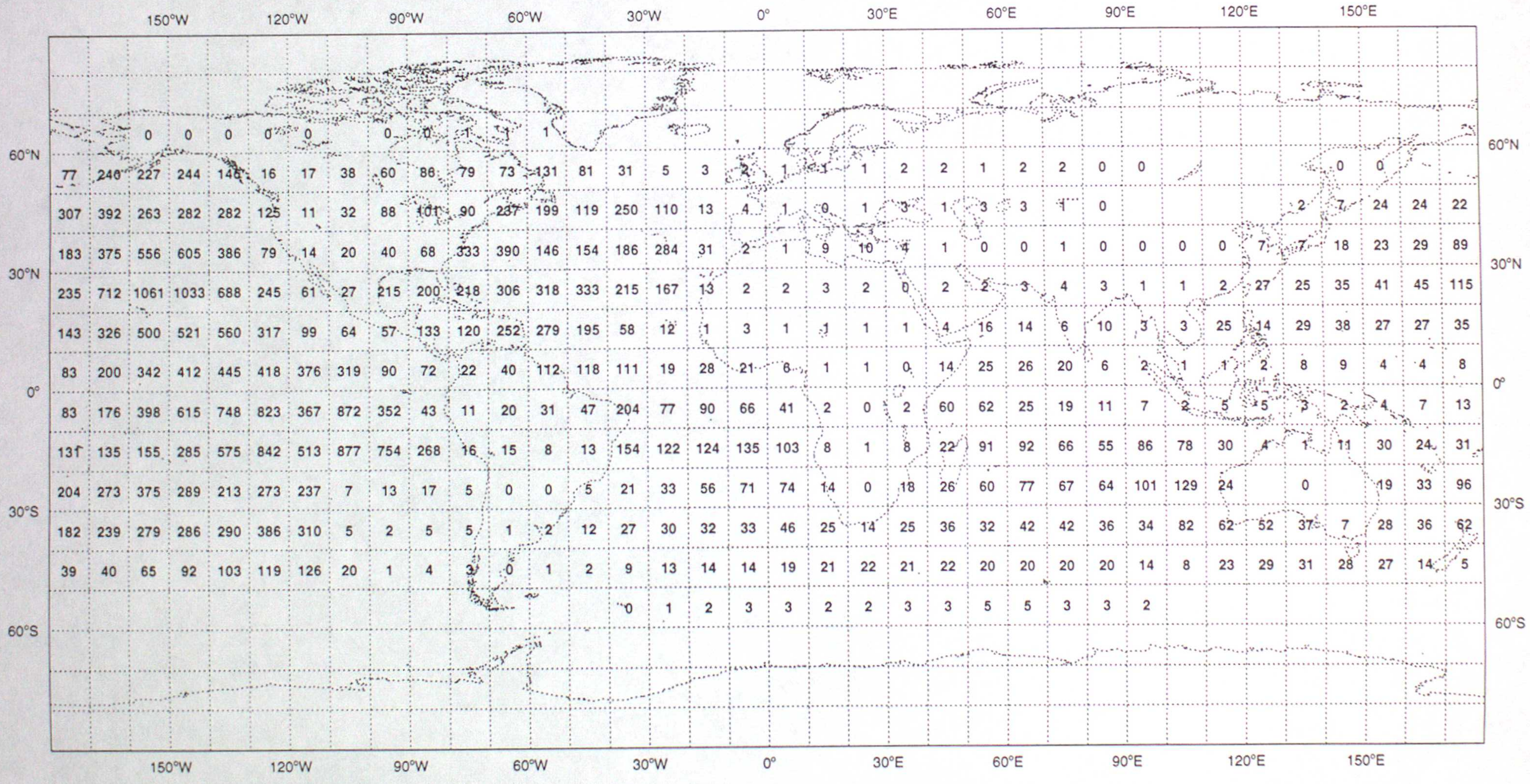
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

Figure 10. SATOB 701 - 1000 hPa mean daily count. OCTOBER 2001
Global average number of observations in 24 hours = 40182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120°W
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0°
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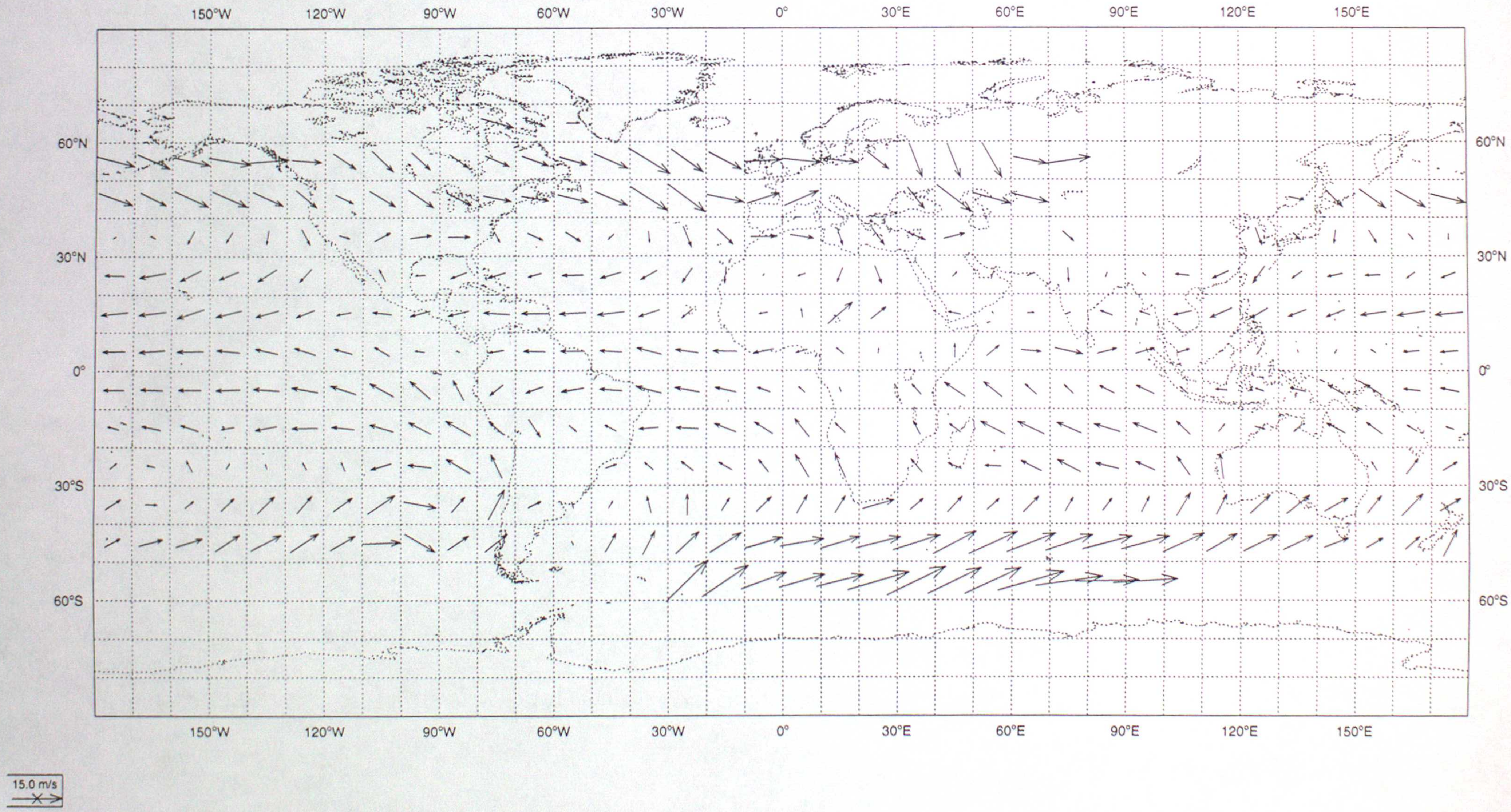
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
0 0 0 0 0 0 0 1 1 1
77 246 227 244 146 16 17 38 60 86 79 73 131 81 31 5 3 2 1 1 1 2 2 1 2 2 0 0 0 0
307 392 263 282 282 125 11 32 88 101 90 237 199 119 250 110 13 4 1 0 1 3 1 3 3 1 0 2 7 24 24 22
183 375 556 605 386 79 14 20 40 68 333 390 146 154 186 284 31 2 1 9 10 4 1 0 0 1 0 0 0 0 7 7 18 23 29 89
235 712 1061 1033 688 245 61 27 215 200 218 306 318 333 215 167 13 2 2 3 2 0 2 2 3 4 3 1 1 2 27 25 35 41 45 115
143 326 500 521 560 317 99 64 57 133 120 252 279 195 58 12 1 3 1 1 1 1 4 16 14 6 10 3 3 25 14 29 38 27 27 35
83 200 342 412 445 418 376 319 90 72 22 40 112 118 111 19 28 21 6 1 1 0 14 25 26 20 6 2 1 1 2 8 9 4 4 8
83 176 398 615 748 823 367 872 352 43 11 20 31 47 204 77 90 66 41 2 0 2 60 62 25 19 11 7 2 5 5 3 2 4 7 13
131 135 155 285 575 842 513 877 754 268 16 15 8 13 154 122 124 135 103 8 1 8 22 91 92 66 55 86 78 30 4 1 11 30 24 31
204 273 375 289 213 273 237 7 13 17 5 0 0 5 21 33 56 71 74 14 0 18 26 60 77 67 64 101 129 24 0 19 33 96
182 239 279 286 290 386 310 5 2 5 5 1 2 12 27 30 32 33 46 25 14 25 36 32 42 42 36 34 82 62 52 37 7 28 36 62
39 40 65 92 103 119 126 20 1 4 3 0 1 2 9 13 14 14 19 21 22 21 22 20 20 20 20 14 8 23 29 31 28 27 14 5
0 1 2 3 3 2 2 3 3 5 5 3 3 2

Figure 11. SATOB 701 - 1000 hPa vector mean wind. OCTOBER 2001
All observations
Arrows are plotted where greater than 10 obs are present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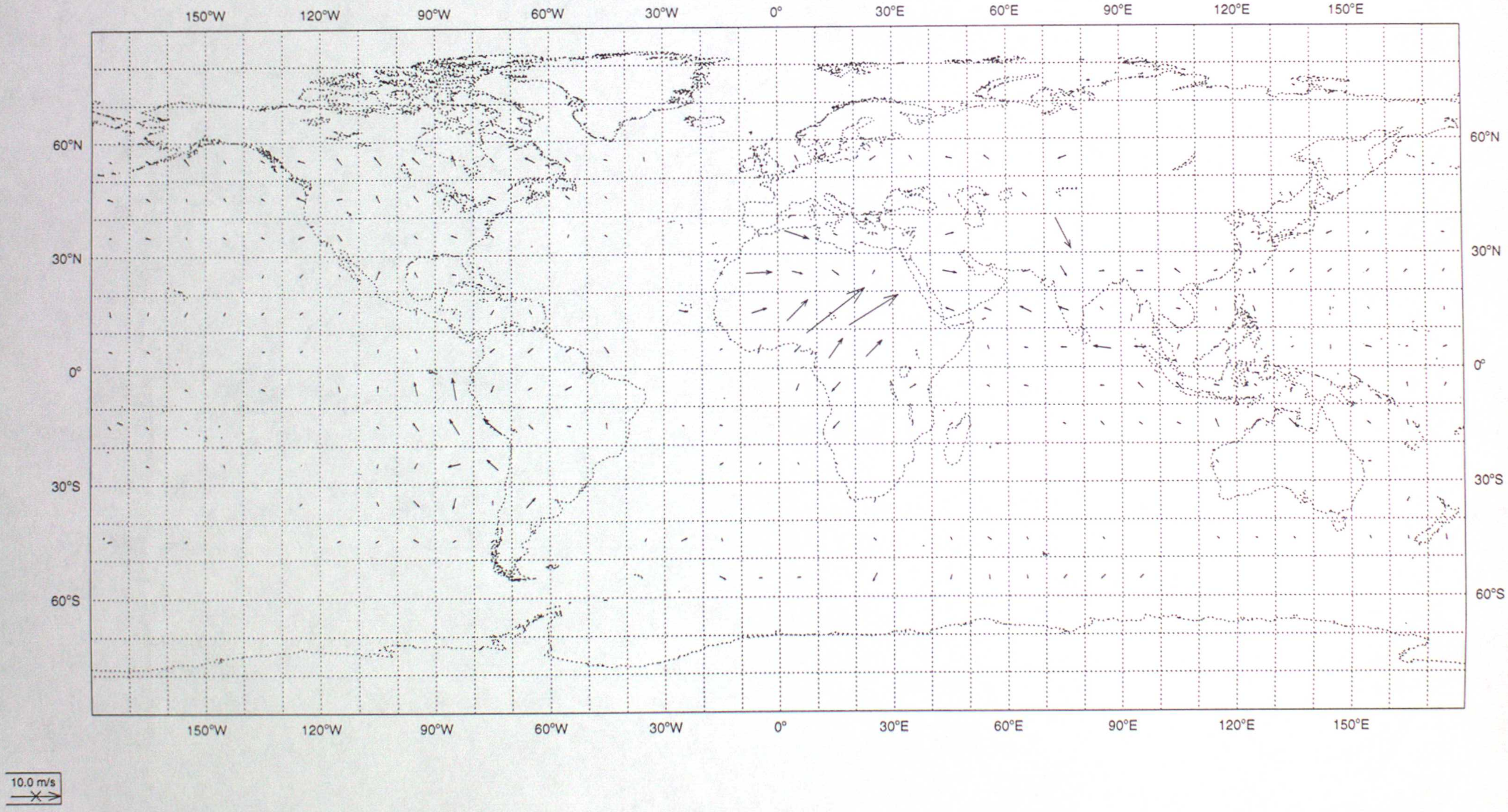
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 12. SATOB 701 - 1000 hPa vector wind differences. OCTOBER 2001

All observations

Arrows are plotted where greater than 10 obs are present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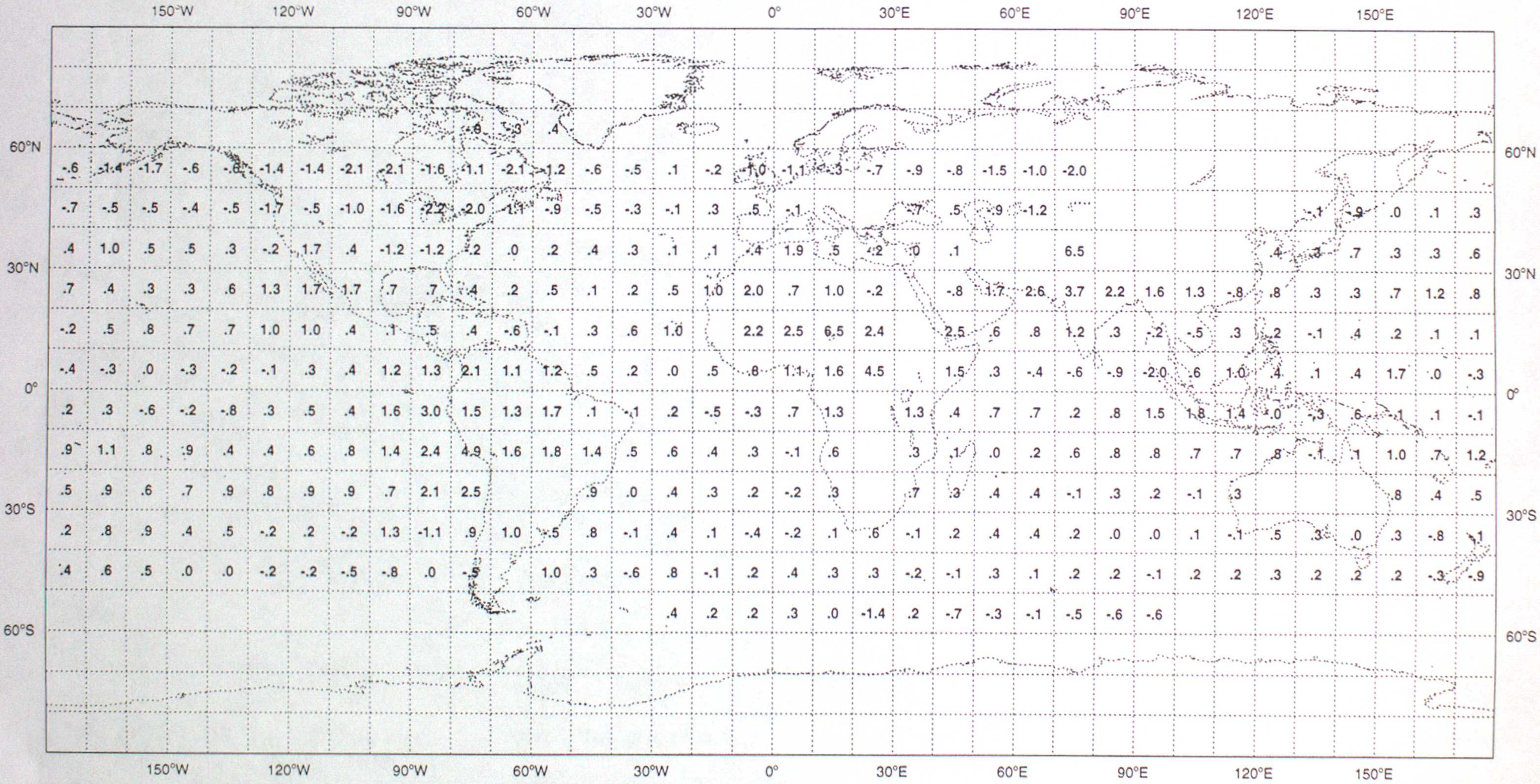
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0 m/s

Figure 13. SATOB 701 - 1000 hPa mean O-B speed differences (ms-1). OCTOBER 2001
All observations
Values are plotted where greater than 10 obs are present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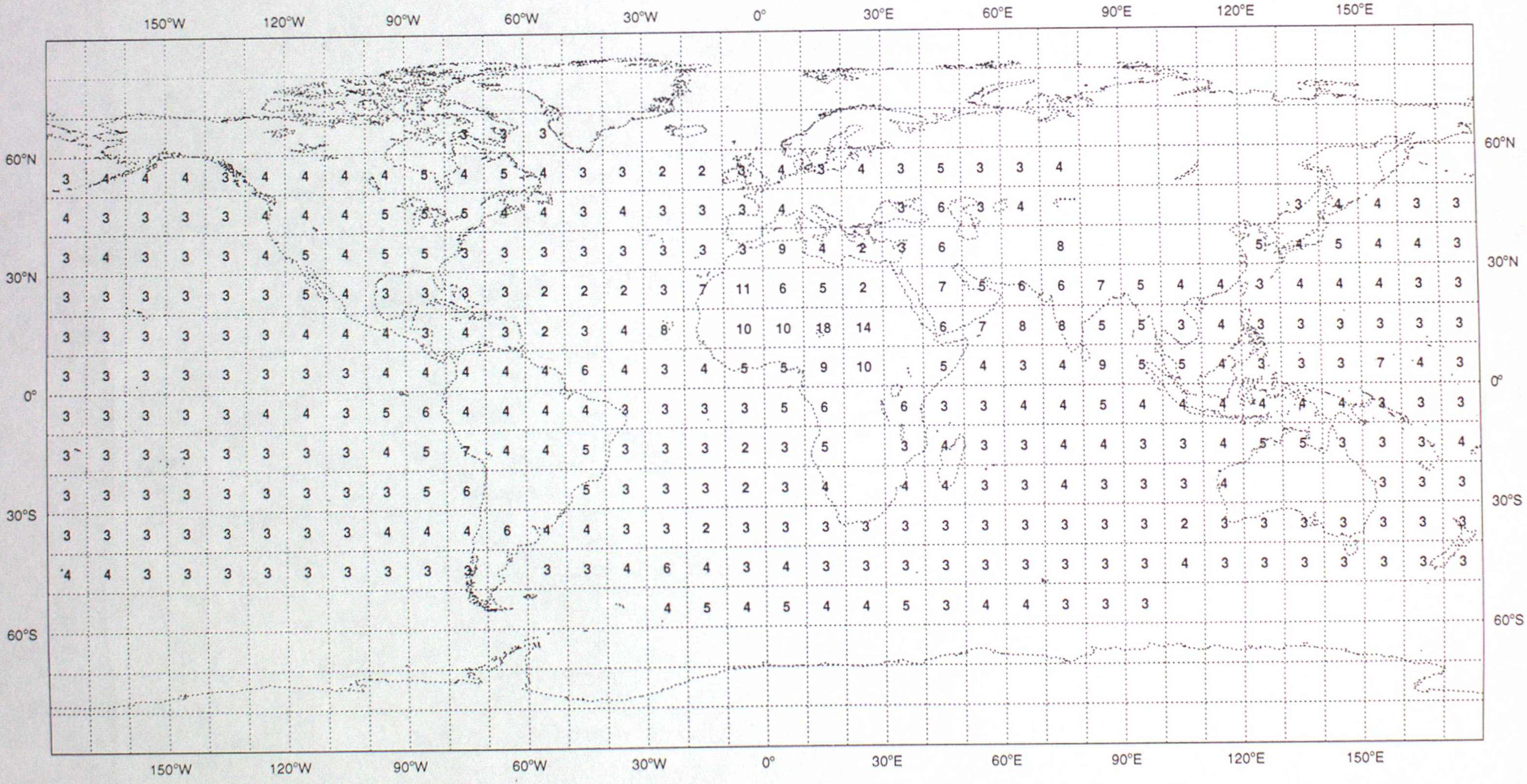
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 14. SATOB 701 - 1000 hPa RMS O-B vector differences (ms-1). OCTOBER 2001

All observations

Values are plotted where greater than 10 obs are present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60°N 30°N 0° 30°S 60°S
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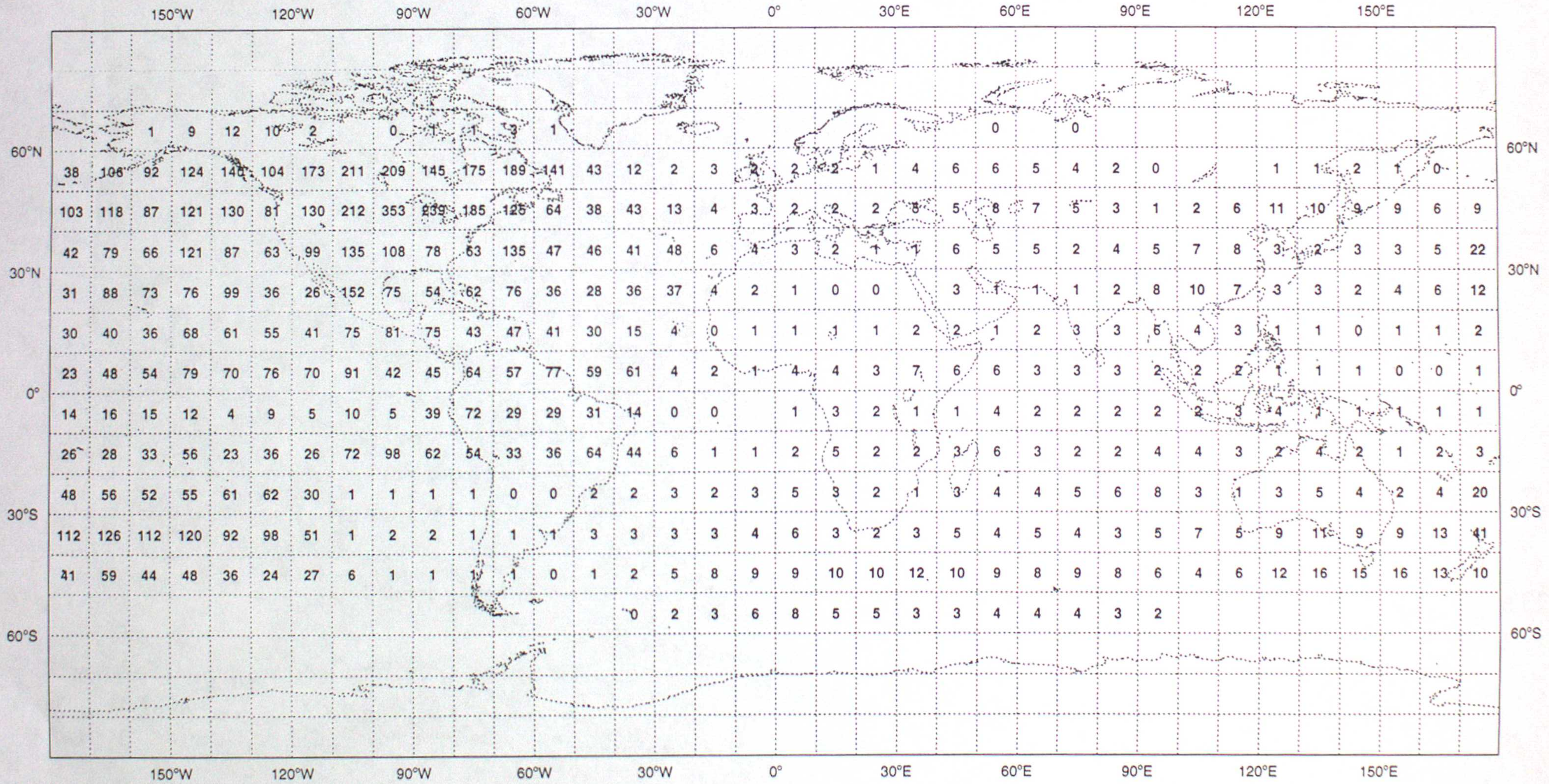
4 3 3 3 3 4 4 4 5 5 5 4 4 3 4 3 3 3 4 3 6 3 4 3 4 4 3 3
3 4 3 3 3 4 5 4 5 5 3 3 3 3 3 3 3 3 9 4 2 3 6 8 5 4 5 4 4 3
3 3 3 3 3 3 5 4 3 3 3 3 2 2 2 3 7 11 6 5 2 7 5 6 6 7 5 4 4 3 4 4 4 3 3
3 3 3 3 3 3 4 4 4 3 4 3 2 3 4 8 10 10 18 14 6 7 8 8 5 5 3 4 3 3 3 3 3 3
3 3 3 3 3 3 3 3 4 4 4 4 4 6 4 3 4 5 5 9 10 5 4 3 4 9 5 5 4 3 3 3 7 4 3
3 3 3 3 3 4 4 3 5 6 4 4 4 4 3 3 3 3 5 6 6 3 3 4 4 5 4 4 4 4 4 4 3 3 3
3 3 3 3 3 3 3 3 4 5 7 4 4 5 3 3 3 2 3 5 3 4 3 3 4 4 3 3 4 5 5 3 3 3 4
3 3 3 3 3 3 3 3 3 5 6 5 3 3 3 2 3 4 4 4 3 3 4 3 3 3 4 3 3 3
3 3 3 3 3 3 3 3 4 4 4 6 4 4 3 3 2 3 3 3 3 3 3 3 3 3 3 2 3 3 3 3 3 3 3
4 4 3 3 3 3 3 3 3 3 3 3 3 4 6 4 3 4 3 3 3 3 3 3 3 3 3 4 3 3 3 3 3 3 3
4 5 4 5 4 4 5 3 4 4 3 3 3

Figure 15. SATOB 401 - 700 hPa mean daily count. OCTOBER 2001
Global average number of observations in 24 hours = 11277

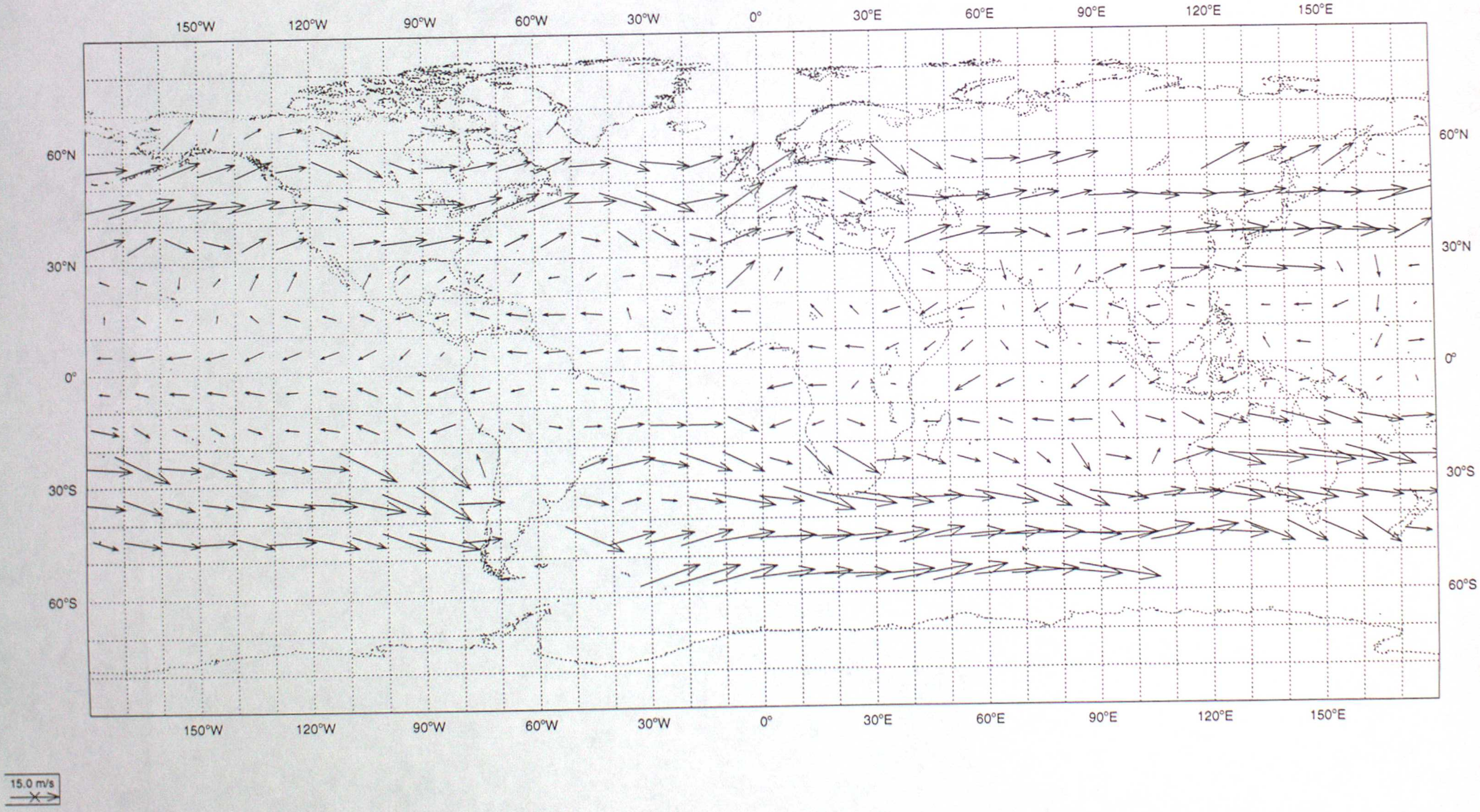


		1	9	12	10	2		0	1	1	3	1											0		0										
38	106	92	124	140	104	173	211	209	145	175	189	141	43	12	2	3	2	2	2	1	4	6	6	5	4	2	0			1	1	2	1	0	
103	118	87	121	130	81	130	212	353	239	185	125	64	38	43	13	4	3	2	2	2	8	5	8	7	5	3	1	2	6	11	10	9	9	6	9
42	79	66	121	87	63	99	135	108	78	63	135	47	46	41	48	6	4	3	2	1	1	6	5	5	2	4	5	7	8	3	2	3	3	5	22
31	88	73	76	99	36	26	152	75	54	62	76	36	28	36	37	4	2	1	0	0		3	1	1	1	2	8	10	7	3	3	2	4	6	12
30	40	36	68	61	55	41	75	81	75	43	47	41	30	15	4	0	1	1	1	1	2	2	1	2	3	3	5	4	3	1	1	0	1	1	2
23	48	54	79	70	76	70	91	42	45	64	57	77	59	61	4	2	1	4	4	3	7	6	6	3	3	3	2	2	2	1	1	1	0	0	1
14	16	15	12	4	9	5	10	5	39	72	29	29	31	14	0	0		1	3	2	1	1	4	2	2	2	2	2	3	4	1	1	1	1	1
26	28	33	56	23	36	26	72	98	62	54	33	36	64	44	6	1	1	2	5	2	2	3	6	3	2	2	4	4	3	2	4	2	1	2	3
48	56	52	55	61	62	30	1	1	1	1	0	0	2	2	3	2	3	5	3	2	1	3	4	4	5	6	8	3	1	3	5	4	2	4	20
112	126	112	120	92	98	51	1	2	2	1	1	1	3	3	3	3	4	6	3	2	3	5	4	5	4	3	5	7	5	9	11	9	9	13	41
41	59	44	48	36	24	27	6	1	1	1	1	0	1	2	5	8	9	9	10	10	12	10	9	8	9	8	6	4	6	12	16	15	16	13	10
														0	2	3	6	8	5	5	3	3	4	4	4	3	2								

Figure 16. SATOB 401 - 700 hPa vector mean wind. OCTOBER 2001

All observations

Arrows are plotted where greater than 10 obs are present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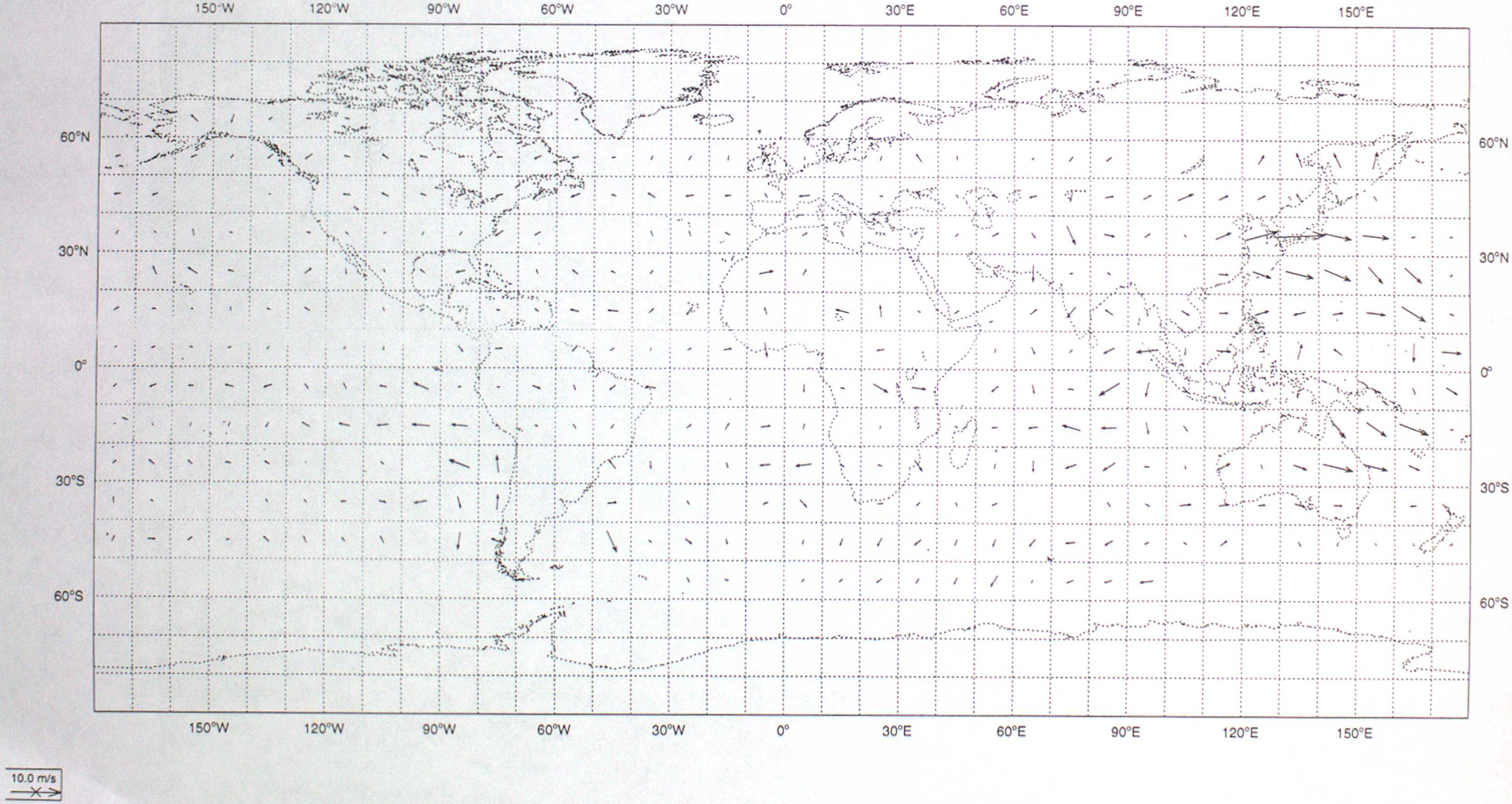
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 17. SATOB 401 - 700 hPa vector wind differences. OCTOBER 2001
All observations
Arrows are plotted where greater than 10 obs are present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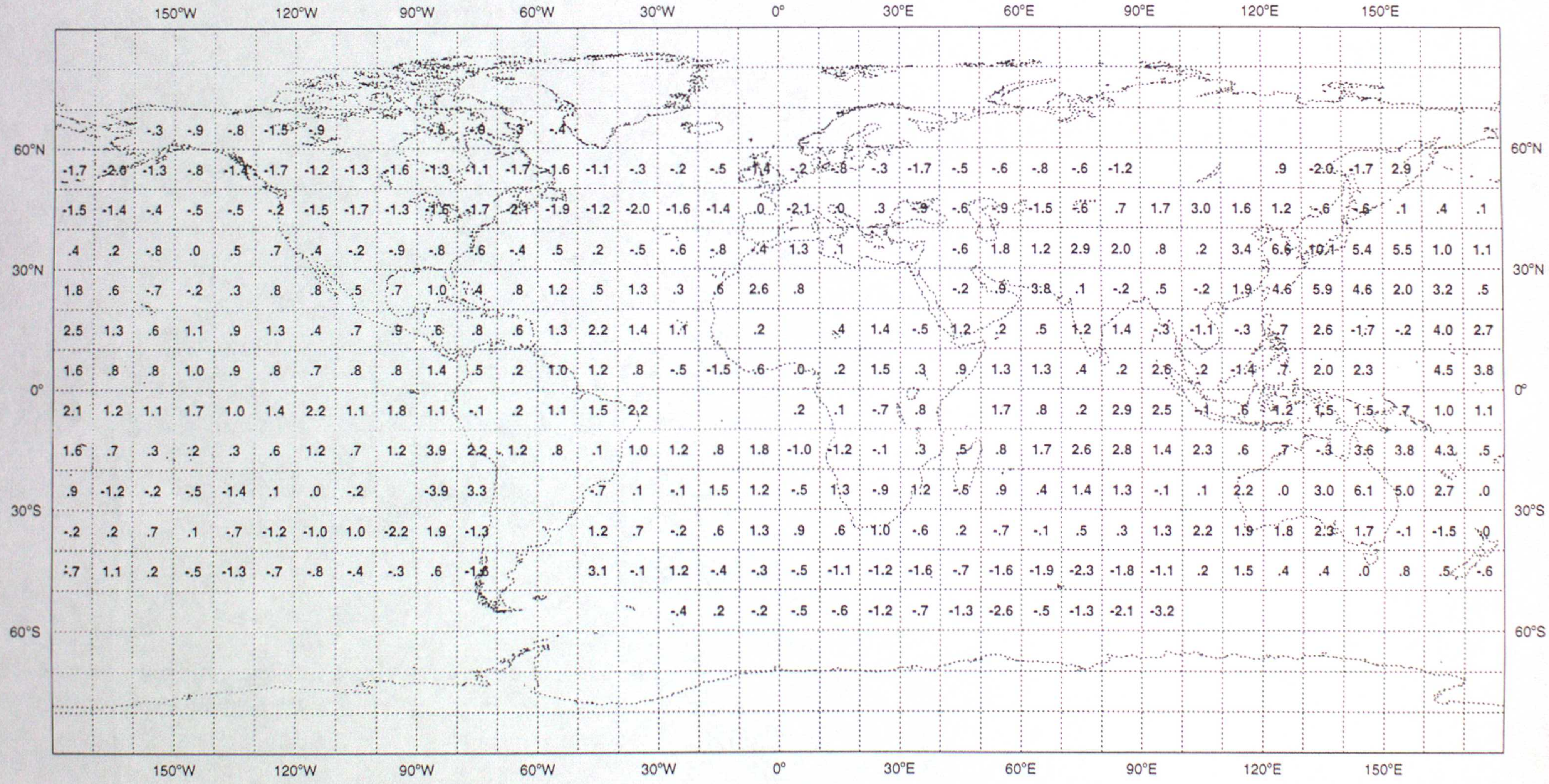
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0 m/s

Figure 18. SATOB 401 - 700 hPa mean O-B speed differences (ms-1). OCTOBER 2001

All observations

Values are plotted where greater than 10 obs are present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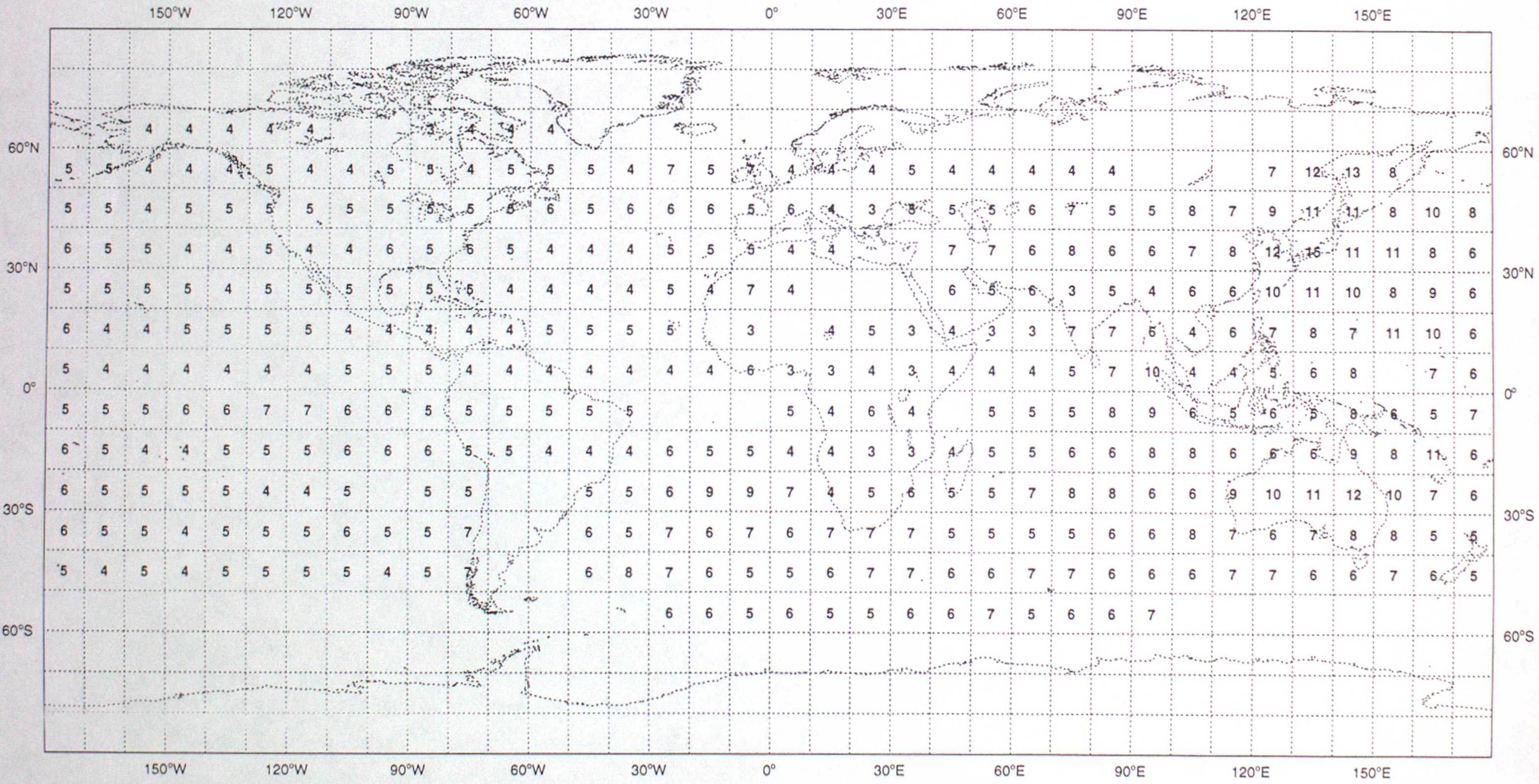
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
-.3 -.9 -.8 -1.5 -.9 -.8 -.9 -.3 -.4
-1.7 -2.6 -1.3 -.8 -1.4 -1.7 -1.2 -1.3 -1.6 -1.3 -1.1 -1.7 -1.6 -1.1 -.3 -.2 -.5 -1.4 -.2 -.8 -.3 -1.7 -.5 -.6 -.8 -.6 -1.2 .9 -2.0 -1.7 2.9
-1.5 -1.4 -.4 -.5 -.5 -.2 -1.5 -1.7 -1.3 -1.6 -1.7 -2.1 -1.9 -1.2 -2.0 -1.6 -1.4 .0 -2.1 .0 .3 -.9 -.6 -.9 -1.5 -.6 .7 1.7 3.0 1.6 1.2 -.6 -.6 .1 .4 .1
.4 .2 -.8 .0 .5 .7 .4 -.2 -.9 -.8 -.6 -.4 .5 .2 -.5 -.6 -.8 -.4 1.3 .1 -.6 1.8 1.2 2.9 2.0 .8 .2 3.4 6.6 10.1 5.4 5.5 1.0 1.1
1.8 .6 -.7 -.2 .3 .8 .8 .5 .7 1.0 .4 .8 1.2 .5 1.3 .3 .6 2.6 .8 -.2 .9 3.8 .1 -.2 .5 -.2 1.9 4.6 5.9 4.6 2.0 3.2 .5
2.5 1.3 .6 1.1 .9 1.3 .4 .7 .9 .6 .8 .6 1.3 2.2 1.4 1.1 .2 .4 1.4 -.5 1.2 .2 .5 1.2 1.4 -.3 -1.1 -.3 .7 2.6 -1.7 -.2 4.0 2.7
1.6 .8 .8 1.0 .9 .8 .7 .8 .8 1.4 .5 .2 1.0 1.2 .8 -.5 -1.5 .6 .0 .2 1.5 .3 .9 1.3 1.3 .4 .2 2.6 .2 -1.4 .7 2.0 2.3 4.5 3.8
2.1 1.2 1.1 1.7 1.0 1.4 2.2 1.1 1.8 1.1 -.1 .2 1.1 1.5 2.2 .2 .1 -.7 .8 1.7 .8 .2 2.9 2.5 -.1 .6 1.2 1.5 1.5 .7 1.0 1.1
1.6 .7 .3 .2 .3 .6 1.2 .7 1.2 3.9 2.2 1.2 .8 .1 1.0 1.2 .8 1.8 -1.0 -1.2 -.1 .3 .5 .8 1.7 2.6 2.8 1.4 2.3 .6 .7 -.3 3.6 3.8 4.3 .5
.9 -1.2 -.2 -.5 -1.4 .1 .0 -.2 -3.9 3.3 -.7 .1 -.1 1.5 1.2 -.5 1.3 -.9 1.2 -.5 .9 .4 1.4 1.3 -.1 .1 2.2 .0 3.0 6.1 5.0 2.7 .0
-.2 .2 .7 .1 -.7 -1.2 -1.0 1.0 -2.2 1.9 -1.3 1.2 .7 -.2 .6 1.3 .9 .6 1.0 -.6 .2 -.7 -.1 .5 .3 1.3 2.2 1.9 1.8 2.3 1.7 -.1 -1.5 .0
-.7 1.1 .2 -.5 -1.3 -.7 -.8 -.4 -.3 .6 -1.6 3.1 -.1 1.2 -.4 -.3 -.5 -1.1 -1.2 -1.6 -.7 -1.6 -1.9 -2.3 -1.8 -1.1 .2 1.5 .4 .4 .0 .8 .5 -.6
-.4 .2 -.2 -.5 -.6 -1.2 -.7 -1.3 -2.6 -.5 -1.3 -2.1 -3.2

Figure 19. SATOB 401 - 700 hPa RMS O-B vector differences (ms-1). OCTOBER 2001
All observations
Values are plotted where greater than 10 obs are present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120°E
150°E
60°N
30°N
0°
30°S
60°S
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5 5 4 4 4 5 4 4 5 5 4 5 5 5 4 7 5 7 4 4 4 5 4 4 4 4 4 7 12 13 8
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5 5 5 6 6 7 7 6 6 5 5 5 5 5 5 5 4 6 4 5 5 5 8 9 6 5 6 5 8 6 5 7
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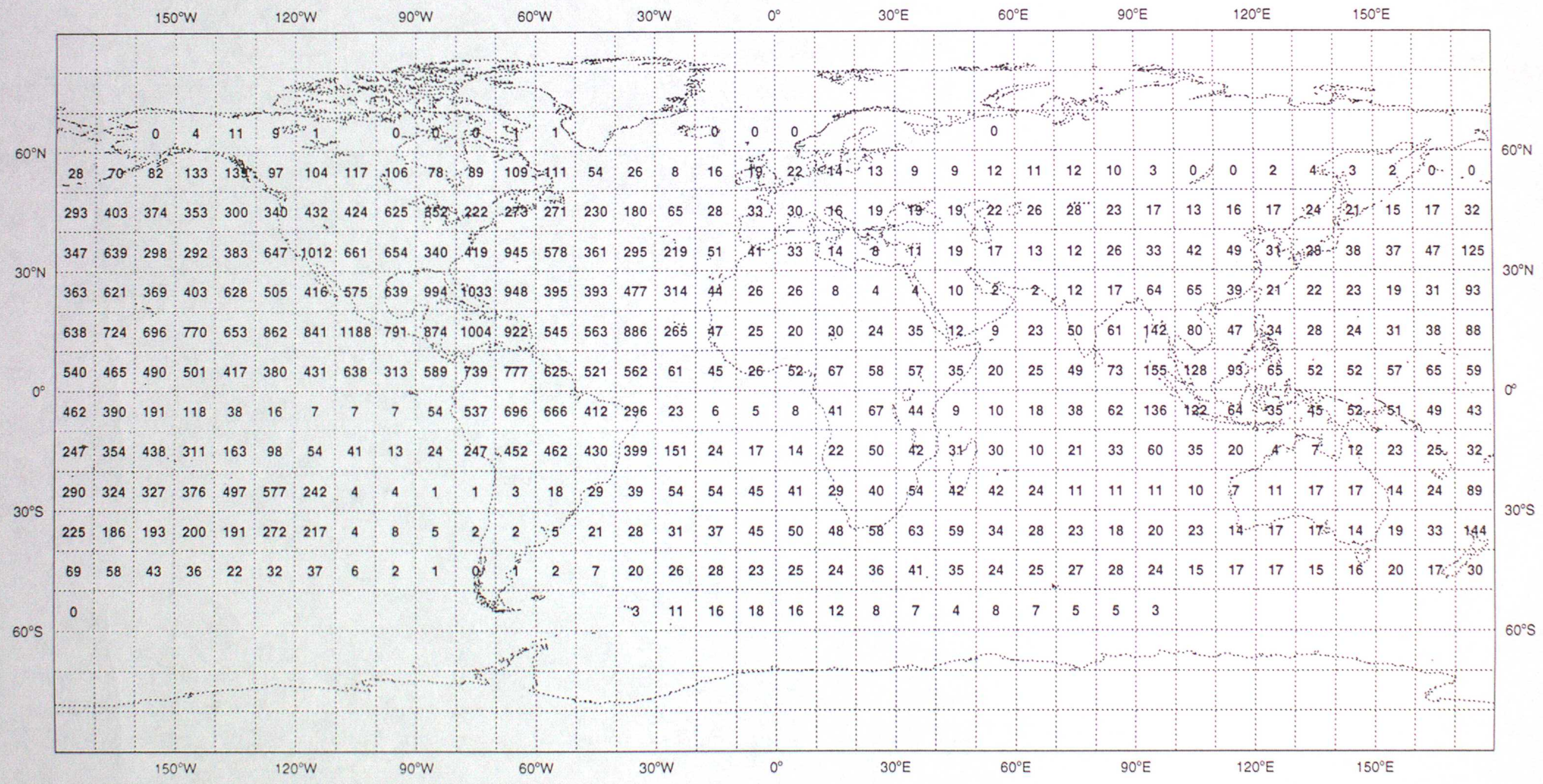
6 5 5 5 5 4 4 5 5 5 5 5 6 9 9 7 4 5 6 5 5 7 8 8 6 6 9 10 11 12 10 7 6
6 5 5 4 5 5 5 6 5 5 7 6 5 7 6 7 6 7 7 7 5 5 5 5 6 6 8 7 6 7 8 8 5 5
5 4 5 4 5 5 5 5 4 5 7 6 8 7 6 5 5 6 7 7 6 6 7 7 6 6 6 7 7 6 6 7 6 5
6 6 5 6 5 5 6 6 7 5 6 6 7

Figure 20. SATOB 101 - 400 hPa mean daily count. OCTOBER 2001
Global average number of observations in 24 hours = 63759



		0	4	11	9	1		0	0	0	1	1				0	0	0					0												
28	70	82	133	139	97	104	117	106	78	89	109	111	54	26	8	16	19	22	14	13	9	9	12	11	12	10	3	0	0	2	4	3	2	0	0
293	403	374	353	300	340	432	424	625	352	222	273	271	230	180	65	28	33	30	16	19	19	19	22	26	28	23	17	13	16	17	24	21	15	17	32
347	639	298	292	383	647	1012	661	654	340	419	945	578	361	295	219	51	41	33	14	8	11	19	17	13	12	26	33	42	49	31	28	38	37	47	125
363	621	369	403	628	505	416	575	639	994	1033	948	395	393	477	314	44	26	26	8	4	4	10	2	2	12	17	64	65	39	21	22	23	19	31	93
638	724	696	770	653	862	841	1188	791	874	1004	922	545	563	886	265	47	25	20	30	24	35	12	9	23	50	61	142	80	47	34	28	24	31	38	88
540	465	490	501	417	380	431	638	313	589	739	777	625	521	562	61	45	26	52	67	58	57	35	20	25	49	73	155	128	93	65	52	52	57	65	59
462	390	191	118	38	16	7	7	7	54	537	696	666	412	296	23	6	5	8	41	67	44	9	10	18	38	62	136	122	64	35	45	52	51	49	43
247	354	438	311	163	98	54	41	13	24	247	452	462	430	399	151	24	17	14	22	50	42	31	30	10	21	33	60	35	20	4	7	12	23	25	32
290	324	327	376	497	577	242	4	4	1	1	3	18	29	39	54	54	45	41	29	40	54	42	42	24	11	11	11	10	7	11	17	17	14	24	89
225	186	193	200	191	272	217	4	8	5	2	2	5	21	28	31	37	45	50	48	58	63	59	34	28	23	18	20	23	14	17	17	14	19	33	144
69	58	43	36	22	32	37	6	2	1	0	1	2	7	20	26	28	23	25	24	36	41	35	24	25	27	28	24	15	17	17	15	16	20	17	30
0														3	11	16	18	16	12	8	7	4	8	7	5	5	3								

Figure 21. SATOB 101 - 400 hPa vector mean wind. OCTOBER 2001
All observations
Arrows are plotted where greater than 10 obs are present

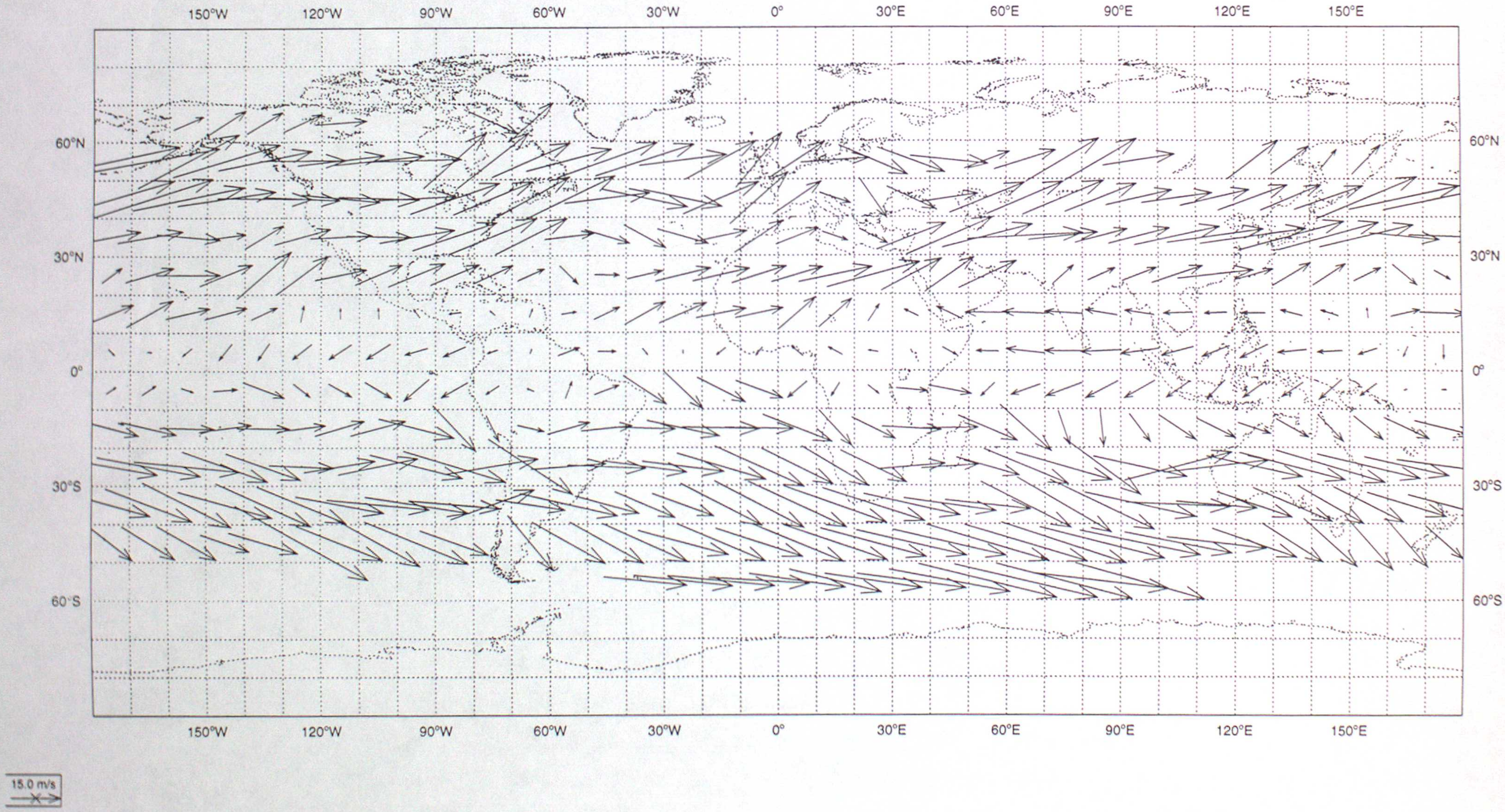

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 22. SATOB 101 - 400 hPa vector wind differences. OCTOBER 2001

All observations

Arrows are plotted where greater than 10 obs are present

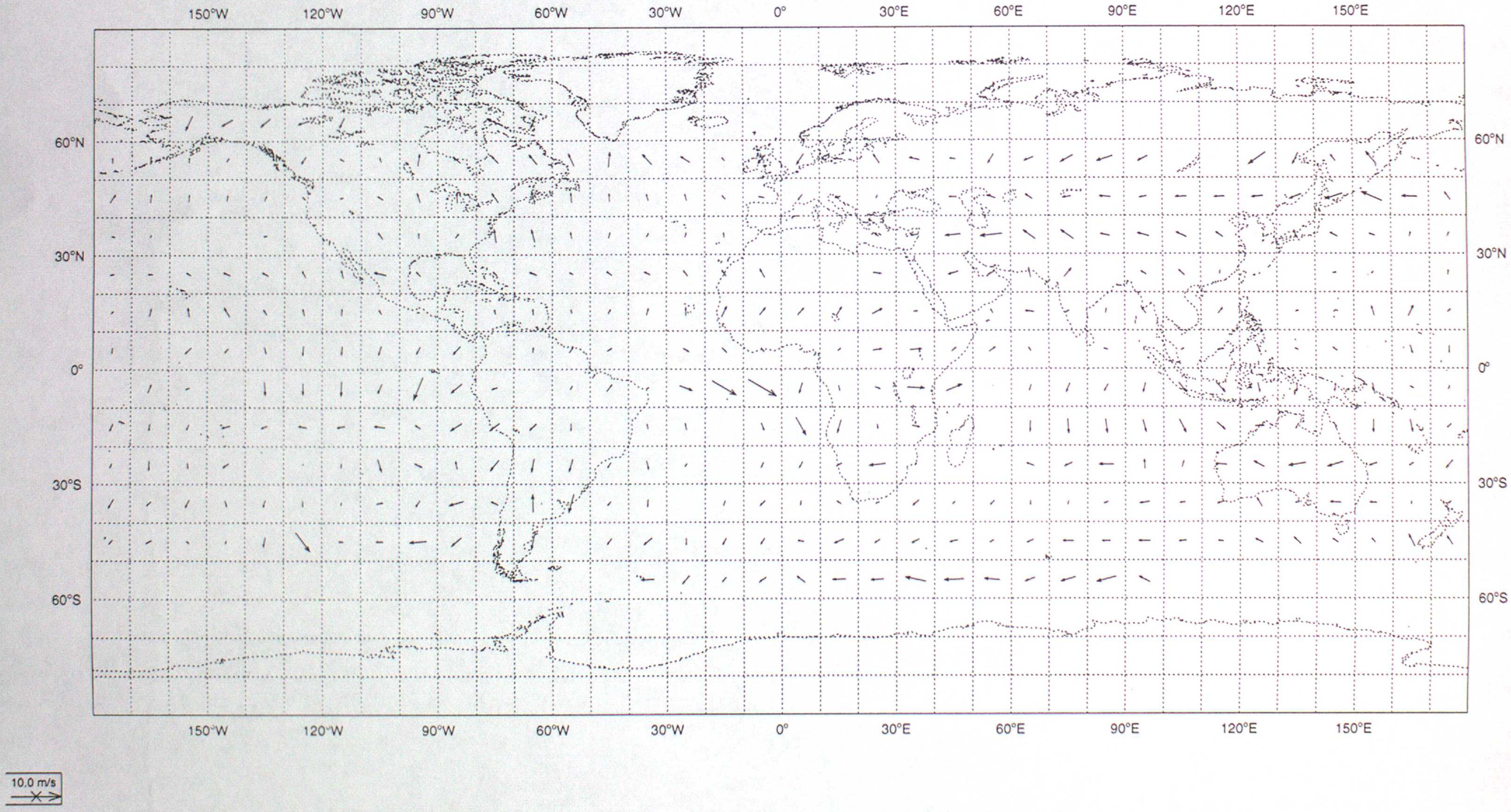

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0 m/s

Figure 23. SATOB 101 - 400 hPa mean O-B speed differences (ms-1). OCTOBER 2001

All observations

Values are plotted where greater than 10 obs are present

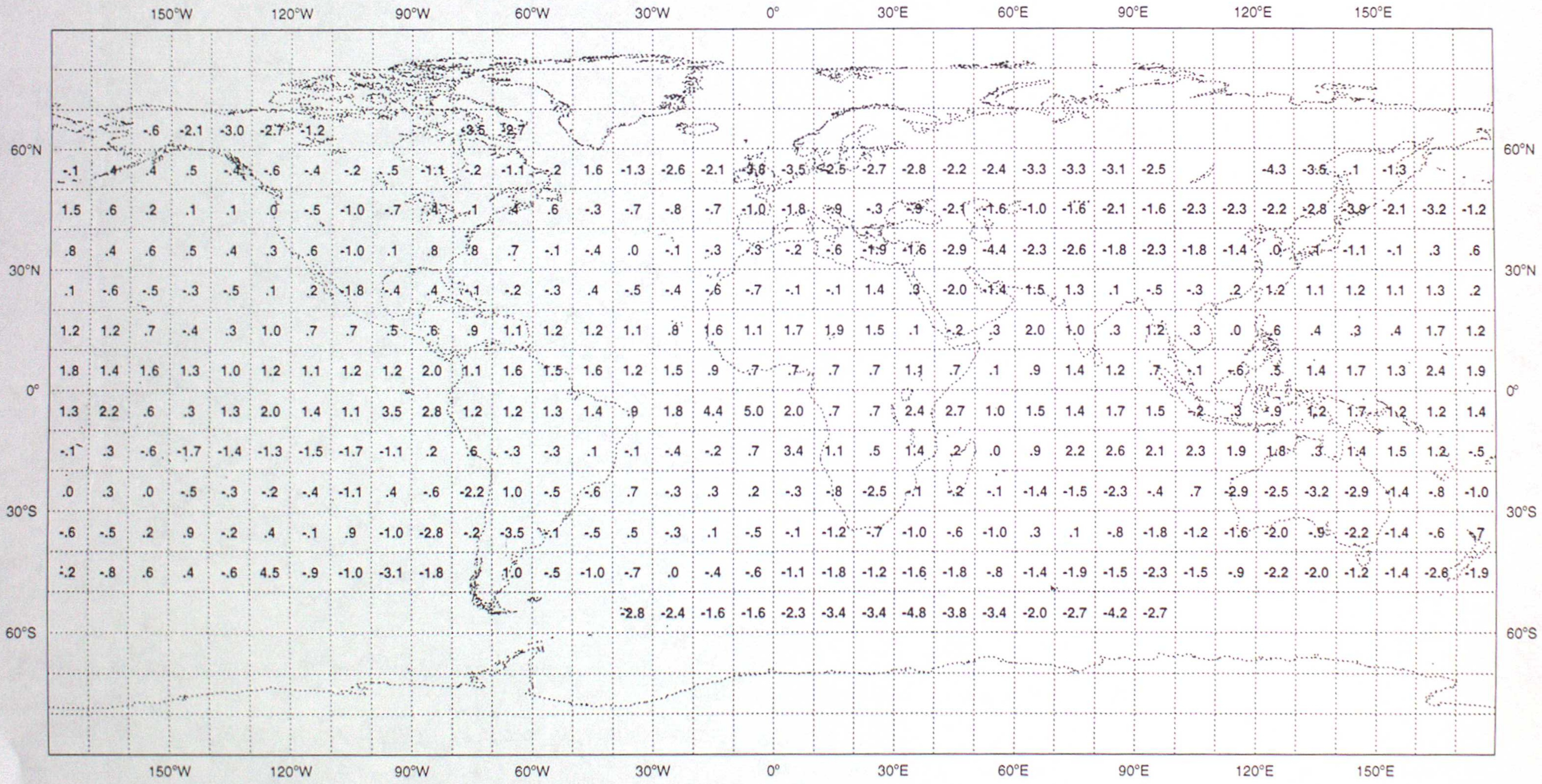
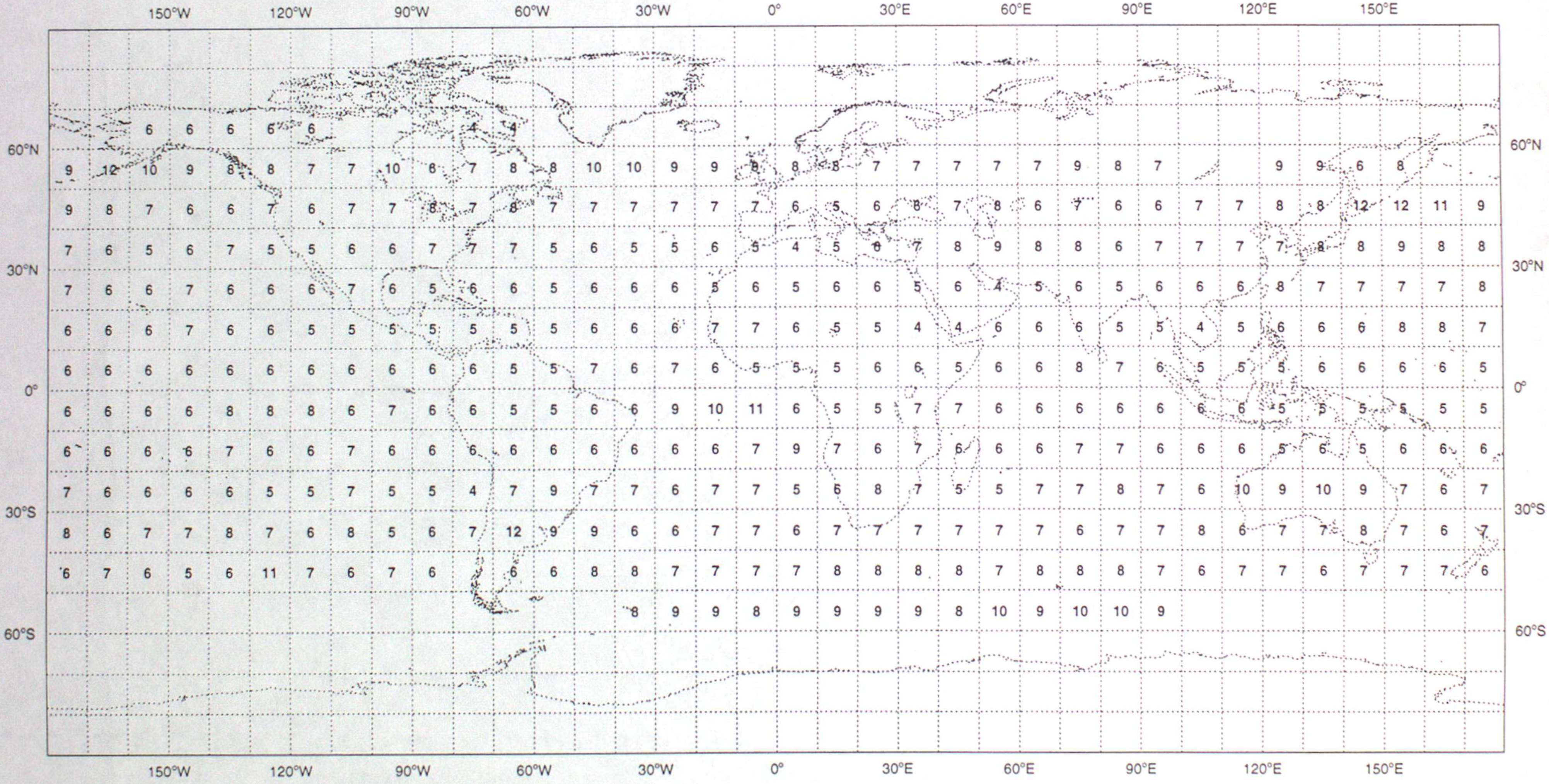

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
-.6 -2.1 -3.0 -2.7 -1.2 -3.5 -2.7
-.1 .4 .4 .5 .4 -.6 -.4 -.2 .5 -1.1 -.2 -1.1 .2 1.6 -1.3 -2.6 -2.1 -3.8 -3.5 -2.5 -2.7 -2.8 -2.2 -2.4 -3.3 -3.3 -3.1 -2.5 -4.3 -3.5 .1 -1.3
1.5 .6 .2 .1 .1 .0 -.5 -1.0 -.7 .4 .1 .4 .6 -.3 -.7 -.8 -.7 -1.0 -1.8 .9 -.3 .9 -2.1 -1.6 -1.0 -1.6 -2.1 -1.6 -2.3 -2.3 -2.2 -2.8 -3.9 -2.1 -3.2 -1.2
.8 .4 .6 .5 .4 .3 .6 -1.0 .1 .8 .8 .7 -.1 -.4 .0 -.1 -.3 .3 -.2 .6 -1.9 -1.6 -2.9 -4.4 -2.3 -2.6 -1.8 -2.3 -1.8 -1.4 .0 -.1 -1.1 -.1 .3 .6
.1 -.6 -.5 -.3 -.5 .1 .2 -1.8 .4 .4 -.1 -.2 -.3 .4 -.5 -.4 -.6 -.7 -.1 -.1 1.4 .3 -2.0 -1.4 1.5 1.3 .1 -.5 -.3 .2 1.2 1.1 1.2 1.1 1.3 .2
1.2 1.2 .7 -.4 .3 1.0 .7 .7 .5 .6 .9 1.1 1.2 1.2 1.1 .8 1.6 1.1 1.7 1.9 1.5 .1 .2 .3 2.0 1.0 .3 1.2 .3 .0 .6 .4 .3 .4 1.7 1.2
1.8 1.4 1.6 1.3 1.0 1.2 1.1 1.2 1.2 2.0 1.1 1.6 1.5 1.6 1.2 1.5 .9 .7 .7 .7 .7 1.1 .7 .1 .9 1.4 1.2 .7 .1 -.6 .5 1.4 1.7 1.3 2.4 1.9
1.3 2.2 .6 .3 1.3 2.0 1.4 1.1 3.5 2.8 1.2 1.2 1.3 1.4 .9 1.8 4.4 5.0 2.0 .7 .7 2.4 2.7 1.0 1.5 1.4 1.7 1.5 .2 .3 .9 1.2 1.7 1.2 1.2 1.4
-.1 .3 -.6 -1.7 -1.4 -1.3 -1.5 -1.7 -1.1 .2 .6 -.3 -.3 .1 -.1 -.4 -.2 .7 3.4 1.1 .5 1.4 .2 .0 .9 2.2 2.6 2.1 2.3 1.9 1.8 .3 1.4 1.5 1.2 -.5
.0 .3 .0 -.5 -.3 -.2 -.4 -1.1 .4 -.6 -2.2 1.0 -.5 .6 .7 -.3 .3 .2 -.3 -.8 -2.5 -.1 .2 -.1 -1.4 -1.5 -2.3 -.4 .7 -2.9 -2.5 -3.2 -2.9 -1.4 -.8 -1.0
-.6 -.5 .2 .9 -.2 .4 -.1 .9 -1.0 -2.8 -.2 -3.5 -.1 -.5 .5 -.3 .1 -.5 -.1 -1.2 -.7 -1.0 -.6 -1.0 .3 .1 -.8 -1.8 -1.2 -1.6 -2.0 -.9 -2.2 -1.4 -.6 -.7
-.2 -.8 .6 .4 -.6 4.5 -.9 -1.0 -3.1 -1.8 1.0 -.5 -1.0 -.7 .0 -.4 -.6 -1.1 -1.8 -1.2 -1.6 -1.8 -.8 -1.4 -1.9 -1.5 -2.3 -1.5 -.9 -2.2 -2.0 -1.2 -1.4 -2.8 -1.9
-2.8 -2.4 -1.6 -1.6 -2.3 -3.4 -3.4 -4.8 -3.8 -3.4 -2.0 -2.7 -4.2 -2.7

Figure 24. SATOB 101 - 400 hPa RMS O-B vector differences (ms-1). OCTOBER 2001

All observations

Values are plotted where greater than 10 obs are present


150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
6 6 6 6 6 4 4
9 12 10 9 8 8 7 7 10 6 7 8 8 10 10 9 9 8 8 8 7 7 7 7 7 9 8 7 9 9 6 8
9 8 7 6 6 7 6 7 7 8 7 8 7 7 7 7 7 7 6 5 6 8 7 8 6 7 6 6 7 7 8 8 12 12 11 9
7 6 5 6 7 5 5 6 6 7 7 7 5 6 5 5 6 5 4 5 6 7 8 9 8 8 6 7 7 7 7 8 8 9 8 8
7 6 6 7 6 6 6 7 6 5 6 6 5 6 6 6 5 6 5 6 6 5 6 4 5 6 5 6 6 6 8 7 7 7 7 8
6 6 6 7 6 6 5 5 5 5 5 5 5 6 6 6 7 7 6 5 5 4 4 6 6 6 5 5 4 5 6 6 6 8 8 7
6 6 6 6 6 6 6 6 6 6 6 5 5 7 6 7 6 5 5 5 6 6 5 6 6 8 7 6 5 5 5 6 6 6 6 5
6 6 6 6 8 8 8 6 7 6 6 5 5 6 6 9 10 11 6 5 5 7 7 6 6 6 6 6 6 6 5 5 5 5 5 5
6 6 6 6 7 6 6 7 6 6 6 6 6 6 6 6 6 7 9 7 6 7 6 6 6 7 7 6 6 6 5 6 5 6 6 6
7 6 6 6 6 5 5 7 5 5 4 7 9 7 7 6 7 7 5 6 8 7 5 5 7 7 8 7 6 10 9 10 9 7 6 7
8 6 7 7 8 7 6 8 5 6 7 12 9 9 6 6 7 7 6 7 7 7 7 7 7 6 7 7 8 6 7 7 8 7 6 7
6 7 6 5 6 11 7 6 7 6 6 6 8 8 7 7 7 7 8 8 8 8 7 8 8 8 7 6 7 7 6 7 7 7 6
8 9 9 8 9 9 9 9 8 10 9 10 10 9

MONITORING OF SATELLITE TEMPERATURES

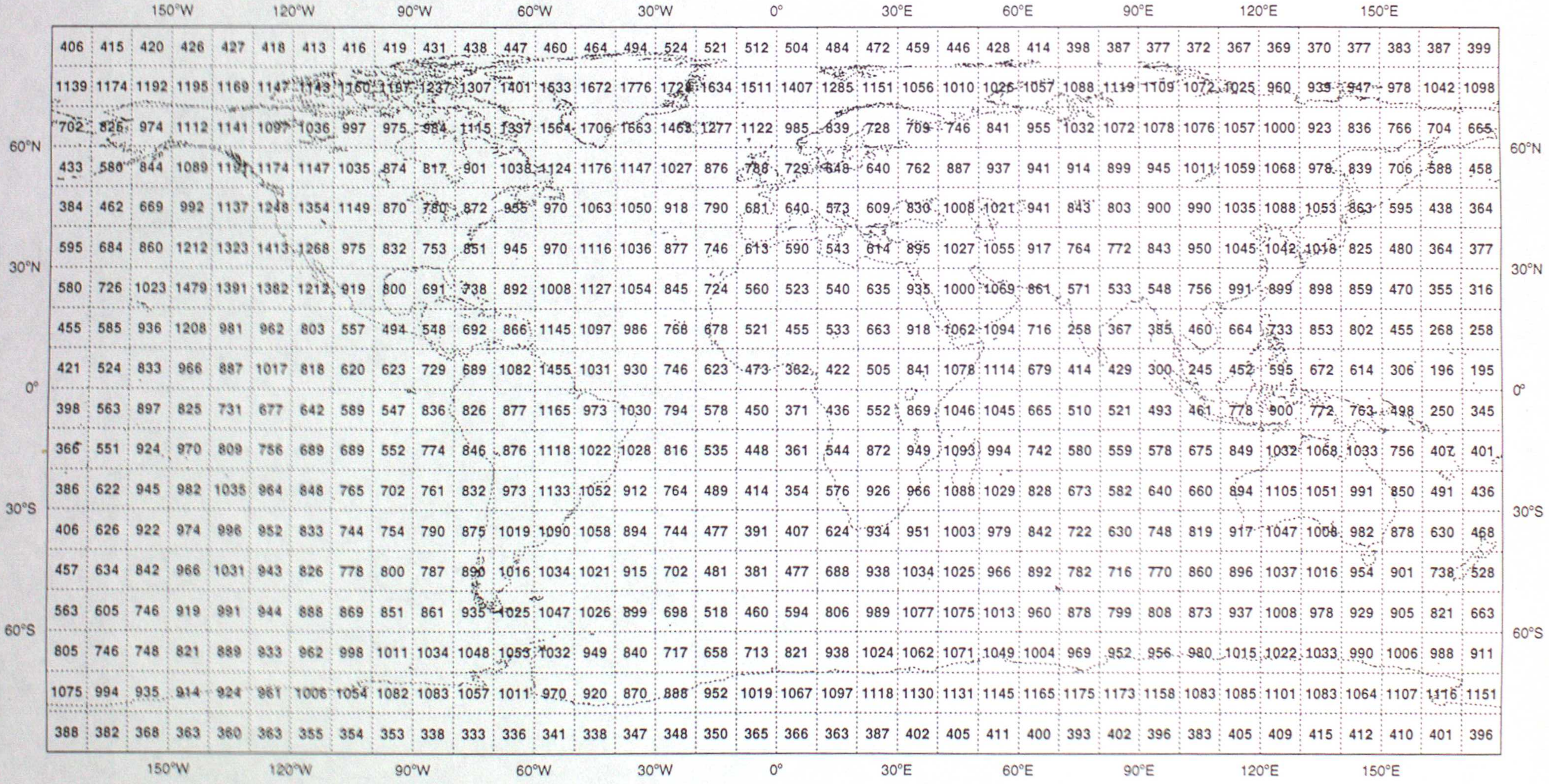
MONITORING CENTRE: BRACKNELL

MONTH: October 2001

Monitoring procedures

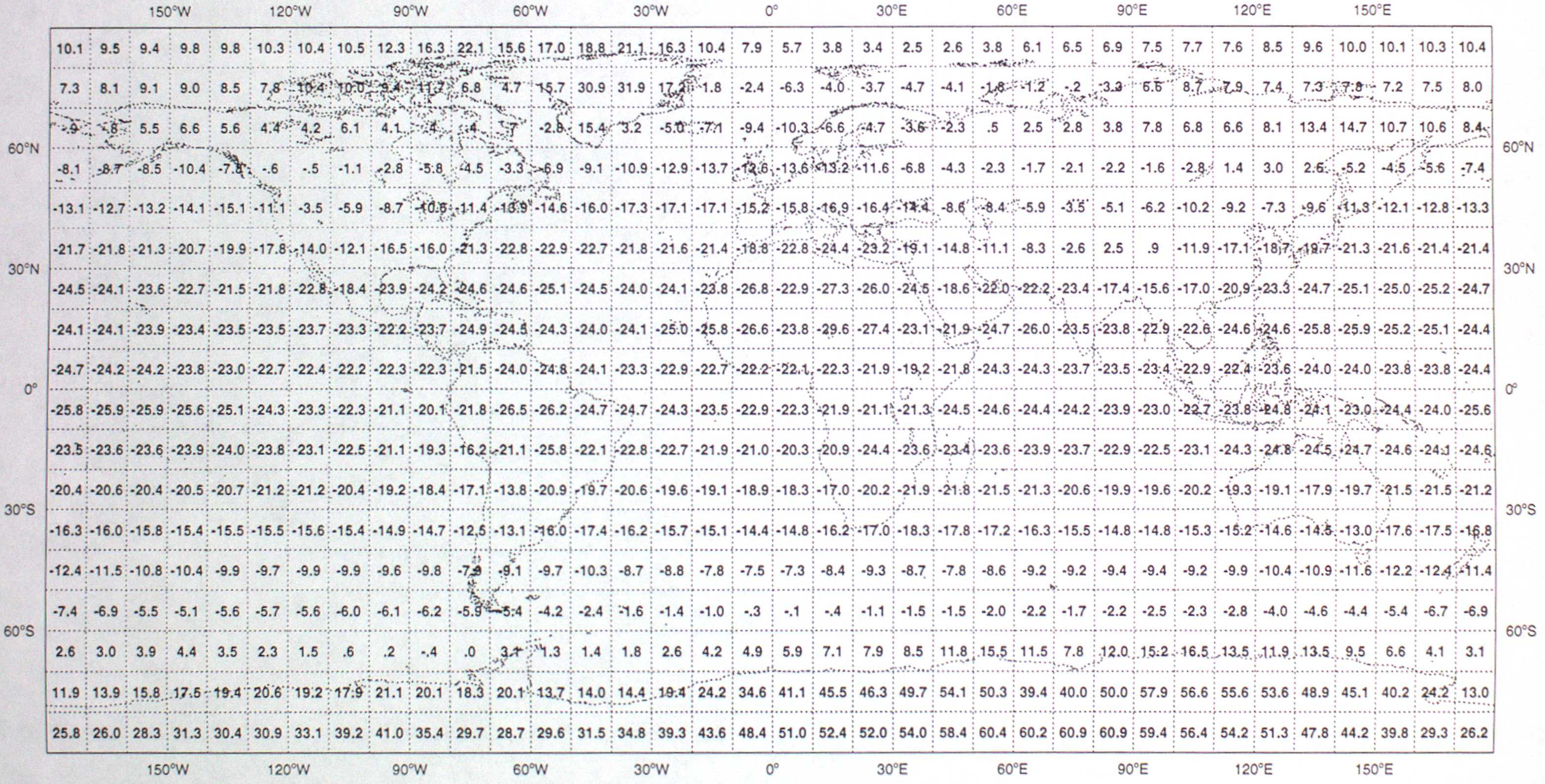
Period	:One calendar month.
Data monitored	:Reports from NOAA-15 and NOAA-16.
Standard of comparison	:Background field from UKMO global model.
Selection Criteria	:All soundings.
Data Extracted	:Sounding channels (and approximate weighting function peaks, hPa) HIRS8 (Surface) HIRS15 (700) HIRS11 (500-700) HIRS4 (400) AMSUA5 (700) AMSUA7 (300) AMSUA9 (100)
	:Mean and standard deviation observation-minus-background brightness temperature differences

Figure 25. ATOVS mean daily count. OCTOBER 2001
NOAA15, using all observations
Global average number of observations in 24 hours = 525268



406	415	420	426	427	418	413	416	419	431	438	447	460	464	494	524	521	512	504	484	472	459	446	428	414	398	387	377	372	367	369	370	377	383	387	399
1139	1174	1192	1195	1169	1147	1143	1160	1197	1237	1307	1401	1633	1672	1776	1728	1634	1511	1407	1285	1151	1056	1010	1026	1057	1088	1119	1109	1072	1025	960	939	947	978	1042	1098
702	826	974	1112	1141	1097	1036	997	975	984	1115	1337	1564	1706	1663	1463	1277	1122	985	839	728	709	746	841	955	1032	1072	1078	1076	1057	1000	923	836	766	704	665
433	580	844	1089	1191	1174	1147	1035	874	817	901	1038	1124	1176	1147	1027	876	788	729	648	640	762	887	937	941	914	899	945	1011	1059	1068	978	839	706	588	458
384	462	669	992	1137	1248	1354	1149	870	780	872	955	970	1063	1050	918	790	681	640	573	609	830	1008	1021	941	843	803	900	990	1035	1088	1053	863	595	438	364
595	684	860	1212	1323	1413	1268	975	832	753	851	945	970	1116	1036	877	746	613	590	543	614	895	1027	1055	917	764	772	843	950	1045	1042	1018	825	480	364	377
580	726	1023	1479	1391	1382	1212	919	800	691	738	892	1008	1127	1054	845	724	560	523	540	635	935	1000	1069	861	571	533	548	756	991	899	898	859	470	355	316
455	585	936	1208	981	962	803	557	494	548	692	866	1145	1097	986	768	678	521	455	533	663	918	1062	1094	716	258	367	385	460	664	733	853	802	455	268	258
421	524	833	966	887	1017	818	620	623	729	689	1082	1455	1031	930	746	623	473	362	422	505	841	1078	1114	679	414	429	300	245	452	595	672	614	306	196	195
398	563	897	825	731	677	642	589	547	836	826	877	1165	973	1030	794	578	450	371	436	552	869	1046	1045	665	510	521	493	461	778	900	772	763	498	250	345
366	551	924	970	809	756	689	689	552	774	846	876	1118	1022	1028	816	535	448	361	544	872	949	1093	994	742	580	559	578	675	849	1032	1068	1033	756	407	401
386	622	945	982	1035	964	848	765	702	761	832	973	1133	1052	912	764	489	414	354	576	926	966	1088	1029	828	673	582	640	660	894	1105	1051	991	850	491	436
406	626	922	974	996	952	833	744	754	790	875	1019	1090	1058	894	744	477	391	407	624	934	951	1003	979	842	722	630	748	819	917	1047	1008	982	878	630	468
457	634	842	966	1031	943	826	778	800	787	890	1016	1034	1021	915	702	481	381	477	688	938	1034	1025	966	892	782	716	770	860	896	1037	1016	954	901	738	528
563	605	746	919	991	944	888	869	851	861	935	1025	1047	1026	899	698	518	460	594	806	989	1077	1075	1013	960	878	799	808	873	937	1008	978	929	905	821	663
805	746	748	821	889	933	962	998	1011	1034	1048	1053	1032	949	840	717	658	713	821	938	1024	1062	1071	1049	1004	969	952	956	980	1015	1022	1033	990	1006	988	911
1075	994	935	914	924	961	1006	1054	1082	1083	1057	1011	970	920	870	888	952	1019	1067	1097	1118	1130	1131	1145	1165	1175	1173	1158	1083	1085	1101	1083	1064	1107	1116	1151
388	382	368	363	360	363	355	354	353	338	333	336	341	338	347	348	350	365	366	363	387	402	405	411	400	393	402	396	383	405	409	415	412	410	401	396

Figure 26. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: HIRS8 (Surface)
NOAA15, using all observations

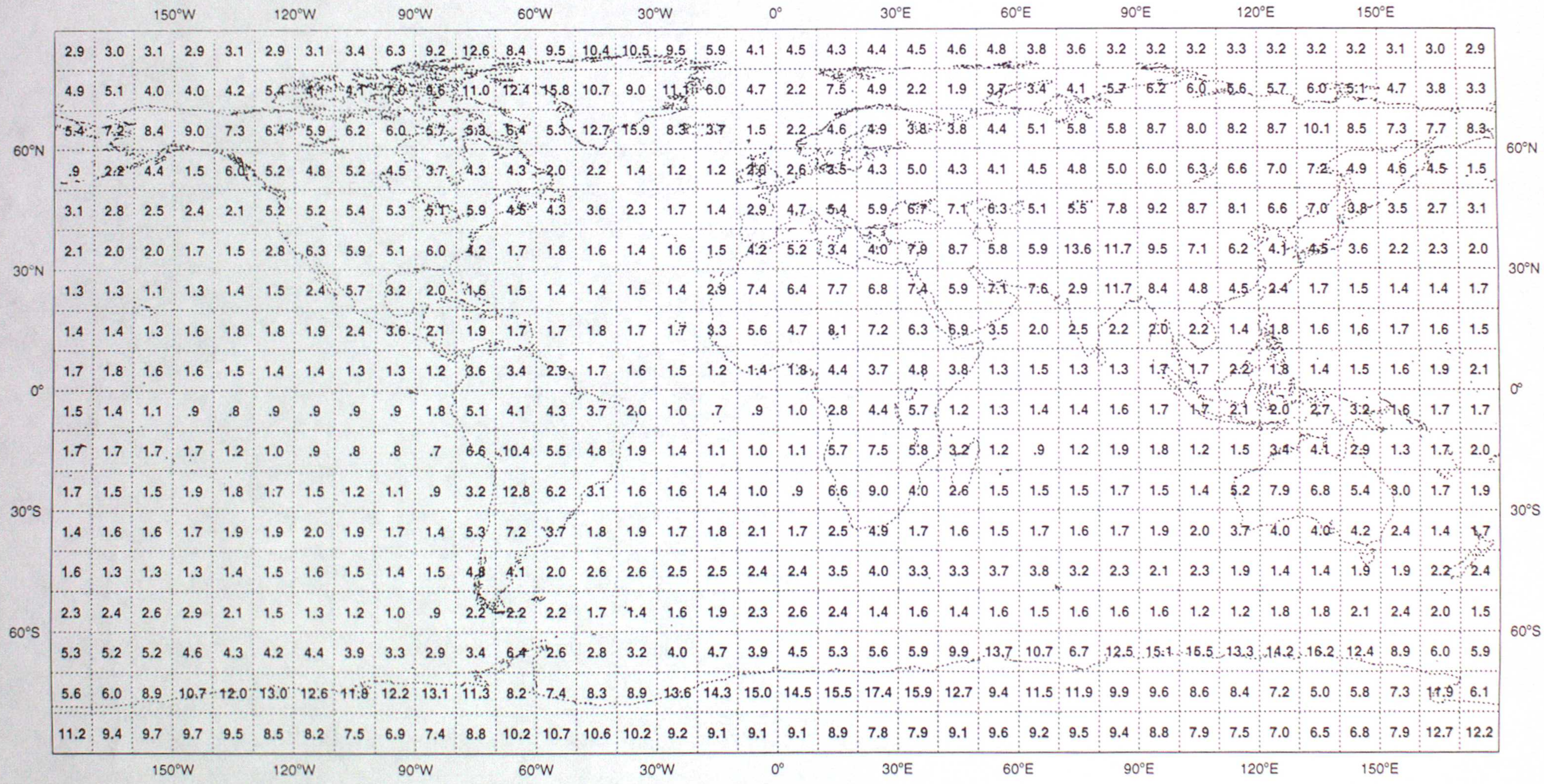


10.1	9.5	9.4	9.8	9.8	10.3	10.4	10.5	12.3	16.3	22.1	15.6	17.0	18.8	21.1	16.3	10.4	7.9	5.7	3.8	3.4	2.5	2.6	3.8	6.1	6.5	6.9	7.5	7.7	7.6	8.5	9.6	10.0	10.1	10.3	10.4
7.3	8.1	9.1	9.0	8.5	7.8	10.4	10.0	9.4	11.7	6.8	4.7	15.7	30.9	31.9	17.2	1.8	-2.4	-6.3	-4.0	-3.7	-4.7	-4.1	-1.8	-1.2	-.2	-3.3	6.5	8.7	7.9	7.4	7.3	7.8	7.2	7.5	8.0
-.9	-.8	5.5	6.6	5.6	4.4	4.2	6.1	4.1	.4	.4	.7	-2.8	15.4	3.2	-5.0	-7.1	-9.4	-10.3	-6.6	-4.7	-3.6	-2.3	.5	2.5	2.8	3.8	7.8	6.8	6.6	8.1	13.4	14.7	10.7	10.6	8.4
-8.1	-8.7	-8.5	-10.4	-7.8	-.6	-.5	-1.1	-2.8	-5.8	-4.5	-3.3	-6.9	-9.1	-10.9	-12.9	-13.7	-12.6	-13.6	-13.2	-11.6	-6.8	-4.3	-2.3	-1.7	-2.1	-2.2	-1.6	-2.8	1.4	3.0	2.6	-5.2	-4.5	-5.6	-7.4
-13.1	-12.7	-13.2	-14.1	-15.1	-11.1	-3.5	-5.9	-8.7	-10.6	-11.4	-13.9	-14.6	-16.0	-17.3	-17.1	-17.1	-15.2	-15.8	-16.9	-16.4	-14.4	-8.6	-8.4	-5.9	-3.5	-5.1	-6.2	-10.2	-9.2	-7.3	-9.6	-11.3	-12.1	-12.8	-13.3
-21.7	-21.8	-21.3	-20.7	-19.9	-17.8	-14.0	-12.1	-16.5	-16.0	-21.3	-22.8	-22.9	-22.7	-21.8	-21.6	-21.4	-18.8	-22.8	-24.4	-23.2	-19.1	-14.8	-11.1	-8.3	-2.6	2.5	.9	-11.9	-17.1	-18.7	-19.7	-21.3	-21.6	-21.4	-21.4
-24.5	-24.1	-23.6	-22.7	-21.5	-21.8	-22.8	-18.4	-23.9	-24.2	-24.6	-24.6	-25.1	-24.5	-24.0	-24.1	-23.8	-26.8	-22.9	-27.3	-26.0	-24.5	-18.6	-22.0	-22.2	-23.4	-17.4	-15.6	-17.0	-20.9	-23.3	-24.7	-25.1	-25.0	-25.2	-24.7
-24.1	-24.1	-23.9	-23.4	-23.5	-23.5	-23.7	-23.3	-22.2	-23.7	-24.9	-24.5	-24.3	-24.0	-24.1	-25.0	-25.8	-26.6	-23.8	-29.6	-27.4	-23.1	-21.9	-24.7	-26.0	-23.5	-23.8	-22.9	-22.6	-24.6	-24.6	-25.8	-25.9	-25.2	-25.1	-24.4
-24.7	-24.2	-24.2	-23.8	-23.0	-22.7	-22.4	-22.2	-22.3	-22.3	-21.5	-24.0	-24.8	-24.1	-23.3	-22.9	-22.7	-22.2	-22.1	-22.3	-21.9	-19.2	-21.8	-24.3	-24.3	-23.7	-23.5	-23.4	-22.9	-22.4	-23.6	-24.0	-24.0	-23.8	-23.8	-24.4
-25.8	-25.9	-25.9	-25.6	-25.1	-24.3	-23.3	-22.3	-21.1	-20.1	-21.8	-26.5	-26.2	-24.7	-24.7	-24.3	-23.5	-22.9	-22.3	-21.9	-21.1	-21.3	-24.5	-24.6	-24.4	-24.2	-23.9	-23.0	-22.7	-23.8	-24.8	-24.1	-23.0	-24.4	-24.0	-25.6
-23.5	-23.6	-23.6	-23.9	-24.0	-23.8	-23.1	-22.5	-21.1	-19.3	-16.2	-21.1	-25.8	-22.1	-22.8	-22.7	-21.9	-21.0	-20.3	-20.9	-24.4	-23.6	-23.4	-23.6	-23.9	-23.7	-22.9	-22.5	-23.1	-24.3	-24.8	-24.5	-24.7	-24.6	-24.1	-24.6
-20.4	-20.6	-20.4	-20.5	-20.7	-21.2	-21.2	-20.4	-19.2	-18.4	-17.1	-13.8	-20.9	-19.7	-20.6	-19.6	-19.1	-18.9	-18.3	-17.0	-20.2	-21.9	-21.8	-21.5	-21.3	-20.6	-19.9	-19.6	-20.2	-19.3	-19.1	-17.9	-19.7	-21.5	-21.5	-21.2
-16.3	-16.0	-15.8	-15.4	-15.5	-15.5	-15.6	-15.4	-14.9	-14.7	-12.5	-13.1	-16.0	-17.4	-16.2	-15.7	-15.1	-14.4	-14.8	-16.2	-17.0	-18.3	-17.8	-17.2	-16.3	-15.5	-14.8	-14.8	-15.3	-15.2	-14.6	-14.5	-13.0	-17.6	-17.5	-16.8
-12.4	-11.5	-10.8	-10.4	-9.9	-9.7	-9.9	-9.9	-9.6	-9.8	-7.9	-9.1	-9.7	-10.3	-8.7	-8.8	-7.8	-7.5	-7.3	-8.4	-9.3	-8.7	-7.8	-8.6	-9.2	-9.2	-9.4	-9.4	-9.2	-9.9	-10.4	-10.9	-11.6	-12.2	-12.4	-11.4
-7.4	-6.9	-5.5	-5.1	-5.6	-5.7	-5.6	-6.0	-6.1	-6.2	-5.9	-5.4	-4.2	-2.4	-1.6	-1.4	-1.0	-.3	-.1	-.4	-1.1	-1.5	-1.5	-2.0	-2.2	-1.7	-2.2	-2.5	-2.3	-2.8	-4.0	-4.6	-4.4	-5.4	-6.7	-6.9
2.6	3.0	3.9	4.4	3.5	2.3	1.5	.6	.2	-.4	.0	3.1	1.3	1.4	1.8	2.6	4.2	4.9	5.9	7.1	7.9	8.5	11.8	15.5	11.5	7.8	12.0	15.2	16.5	13.5	11.9	13.5	9.5	6.6	4.1	3.1
11.9	13.9	15.8	17.5	19.4	20.6	19.2	17.9	21.1	20.1	18.3	20.1	13.7	14.0	14.4	19.4	24.2	34.6	41.1	45.5	46.3	49.7	54.1	50.3	39.4	40.0	50.0	57.9	56.6	55.6	53.6	48.9	45.1	40.2	24.2	13.0
25.8	26.0	28.3	31.3	30.4	30.9	33.1	39.2	41.0	35.4	29.7	28.7	29.6	31.5	34.8	39.3	43.6	48.4	51.0	52.4	52.0	54.0	58.4	60.4	60.2	60.9	60.9	59.4	56.4	54.2	51.3	47.8	44.2	39.8	29.3	26.2

Figure 27. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001

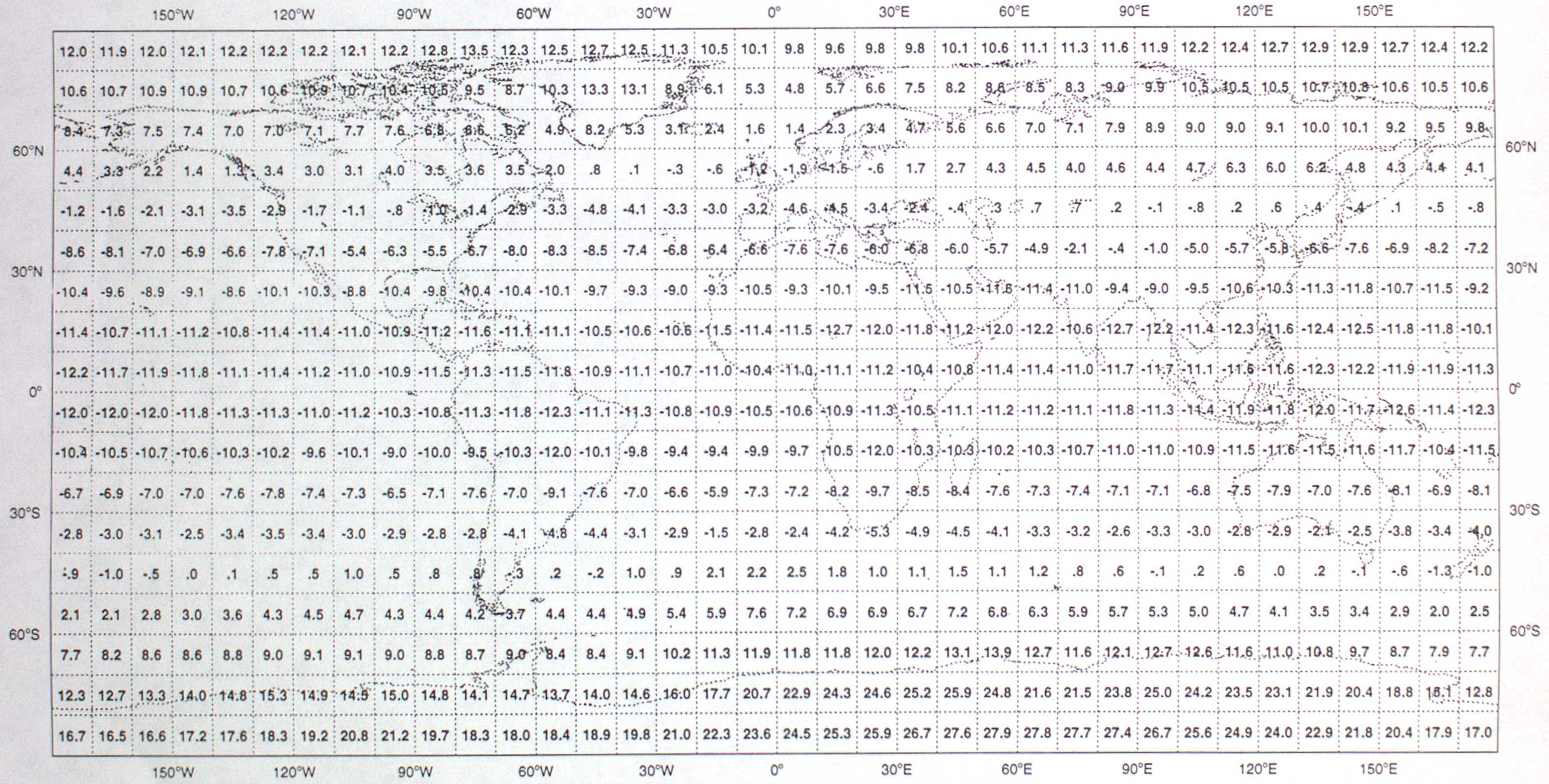
Channel: HIRS8 (Surface)

NOAA15, using all observations



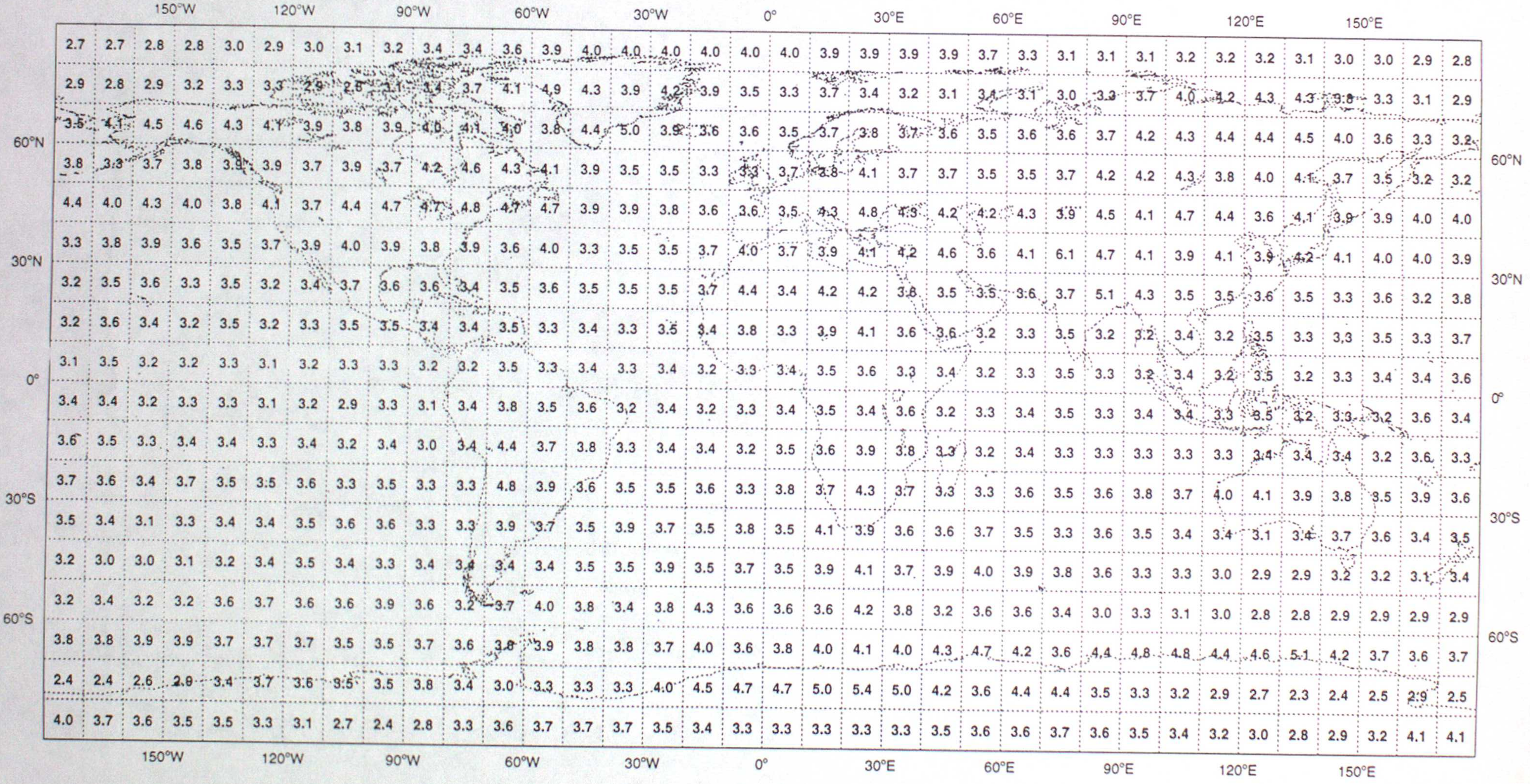
2.9	3.0	3.1	2.9	3.1	2.9	3.1	3.4	6.3	9.2	12.6	8.4	9.5	10.4	10.5	9.5	5.9	4.1	4.5	4.3	4.4	4.5	4.6	4.8	3.8	3.6	3.2	3.2	3.2	3.3	3.2	3.2	3.2	3.1	3.0	2.9
4.9	5.1	4.0	4.0	4.2	5.4	4.1	4.1	7.0	9.6	11.0	12.4	15.8	10.7	9.0	11.1	6.0	4.7	2.2	7.5	4.9	2.2	1.9	3.7	3.4	4.1	5.7	6.2	6.0	5.6	5.7	6.0	5.1	4.7	3.8	3.3
5.4	7.2	8.4	9.0	7.3	6.4	5.9	6.2	6.0	5.7	5.3	6.4	5.3	12.7	15.9	8.3	3.7	1.5	2.2	4.6	4.9	3.8	3.8	4.4	5.1	5.8	5.8	8.7	8.0	8.2	8.7	10.1	8.5	7.3	7.7	8.3
.9	2.2	4.4	1.5	6.0	5.2	4.8	5.2	4.5	3.7	4.3	4.3	2.0	2.2	1.4	1.2	1.2	2.0	2.6	3.5	4.3	5.0	4.3	4.1	4.5	4.8	5.0	6.0	6.3	6.6	7.0	7.2	4.9	4.6	4.5	1.5
3.1	2.8	2.5	2.4	2.1	5.2	5.2	5.4	5.3	5.1	5.9	4.5	4.3	3.6	2.3	1.7	1.4	2.9	4.7	5.4	5.9	6.7	7.1	6.3	5.1	5.5	7.8	9.2	8.7	8.1	6.6	7.0	3.8	3.5	2.7	3.1
2.1	2.0	2.0	1.7	1.5	2.8	6.3	5.9	5.1	6.0	4.2	1.7	1.8	1.6	1.4	1.6	1.5	4.2	5.2	3.4	4.0	7.9	8.7	5.8	5.9	13.6	11.7	9.5	7.1	6.2	4.1	4.5	3.6	2.2	2.3	2.0
1.3	1.3	1.1	1.3	1.4	1.5	2.4	5.7	3.2	2.0	1.6	1.5	1.4	1.4	1.5	1.4	2.9	7.4	6.4	7.7	6.8	7.4	5.9	7.1	7.6	2.9	11.7	8.4	4.8	4.5	2.4	1.7	1.5	1.4	1.4	1.7
1.4	1.4	1.3	1.6	1.8	1.8	1.9	2.4	3.6	2.1	1.9	1.7	1.7	1.8	1.7	1.7	3.3	5.6	4.7	8.1	7.2	6.3	6.9	3.5	2.0	2.5	2.2	2.0	2.2	1.4	1.8	1.6	1.6	1.7	1.6	1.5
1.7	1.8	1.6	1.6	1.5	1.4	1.4	1.3	1.3	1.2	3.6	3.4	2.9	1.7	1.6	1.5	1.2	1.4	1.8	4.4	3.7	4.8	3.8	1.3	1.5	1.3	1.3	1.7	1.7	2.2	1.8	1.4	1.5	1.6	1.9	2.1
1.5	1.4	1.1	.9	.8	.9	.9	.9	.9	1.8	5.1	4.1	4.3	3.7	2.0	1.0	.7	.9	1.0	2.8	4.4	5.7	1.2	1.3	1.4	1.4	1.6	1.7	1.7	2.1	2.0	2.7	3.2	1.6	1.7	1.7
1.7	1.7	1.7	1.7	1.2	1.0	.9	.8	.8	.7	6.6	10.4	5.5	4.8	1.9	1.4	1.1	1.0	1.1	5.7	7.5	5.8	3.2	1.2	.9	1.2	1.9	1.8	1.2	1.5	3.4	4.1	2.9	1.3	1.7	2.0
1.7	1.5	1.5	1.9	1.8	1.7	1.5	1.2	1.1	.9	3.2	12.8	6.2	3.1	1.6	1.6	1.4	1.0	.9	6.6	9.0	4.0	2.6	1.5	1.5	1.5	1.7	1.5	1.4	5.2	7.9	6.8	5.4	3.0	1.7	1.9
1.4	1.6	1.6	1.7	1.9	1.9	2.0	1.9	1.7	1.4	5.3	7.2	3.7	1.8	1.9	1.7	1.8	2.1	1.7	2.5	4.9	1.7	1.6	1.5	1.7	1.6	1.7	1.9	2.0	3.7	4.0	4.0	4.2	2.4	1.4	1.7
1.6	1.3	1.3	1.3	1.4	1.5	1.6	1.5	1.4	1.5	4.8	4.1	2.0	2.6	2.6	2.5	2.5	2.4	2.4	3.5	4.0	3.3	3.3	3.7	3.8	3.2	2.3	2.1	2.3	1.9	1.4	1.4	1.9	1.9	2.2	2.4
2.3	2.4	2.6	2.9	2.1	1.5	1.3	1.2	1.0	.9	2.2	2.2	2.2	1.7	1.4	1.6	1.9	2.3	2.6	2.4	1.4	1.6	1.4	1.6	1.5	1.6	1.6	1.6	1.2	1.2	1.8	1.8	2.1	2.4	2.0	1.5
5.3	5.2	5.2	4.6	4.3	4.2	4.4	3.9	3.3	2.9	3.4	6.4	2.6	2.8	3.2	4.0	4.7	3.9	4.5	5.3	5.6	5.9	9.9	13.7	10.7	6.7	12.5	15.1	15.5	13.3	14.2	16.2	12.4	8.9	6.0	5.9
5.6	6.0	8.9	10.7	12.0	13.0	12.6	11.8	12.2	13.1	11.3	8.2	7.4	8.3	8.9	13.6	14.3	15.0	14.5	15.5	17.4	15.9	12.7	9.4	11.5	11.9	9.9	9.6	8.6	8.4	7.2	5.0	5.8	7.3	11.9	6.1
11.2	9.4	9.7	9.7	9.5	8.5	8.2	7.5	6.9	7.4	8.8	10.2	10.7	10.6	10.2	9.2	9.1	9.1	9.1	8.9	7.8	7.9	9.1	9.6	9.2	9.5	9.4	8.8	7.9	7.5	7.0	6.5	6.8	7.9	12.7	12.2

Figure 28. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



12.0	11.9	12.0	12.1	12.2	12.2	12.2	12.1	12.2	12.8	13.5	12.3	12.5	12.7	12.5	11.3	10.5	10.1	9.8	9.6	9.8	9.8	10.1	10.6	11.1	11.3	11.6	11.9	12.2	12.4	12.7	12.9	12.9	12.7	12.4	12.2
10.6	10.7	10.9	10.9	10.7	10.6	10.9	10.7	10.4	10.5	9.5	8.7	10.3	13.3	13.1	8.9	6.1	5.3	4.8	5.7	6.6	7.5	8.2	8.6	8.5	8.3	9.0	9.9	10.5	10.5	10.5	10.7	10.8	10.6	10.5	10.6
8.4	7.3	7.5	7.4	7.0	7.0	7.1	7.7	7.6	6.8	8.6	5.2	4.9	8.2	5.3	3.1	2.4	1.6	1.4	2.3	3.4	4.7	5.6	6.6	7.0	7.1	7.9	8.9	9.0	9.0	9.1	10.0	10.1	9.2	9.5	9.8
4.4	3.3	2.2	1.4	1.3	3.4	3.0	3.1	4.0	3.5	3.6	3.5	2.0	.8	.1	-.3	-.6	-1.2	-1.9	-1.5	-.6	1.7	2.7	4.3	4.5	4.0	4.6	4.4	4.7	6.3	6.0	6.2	4.8	4.3	4.4	4.1
-1.2	-1.6	-2.1	-3.1	-3.5	-2.9	-1.7	-1.1	-.8	-1.0	-1.4	-2.9	-3.3	-4.8	-4.1	-3.3	-3.0	-3.2	-4.6	-4.5	-3.4	-2.4	-.4	.3	.7	.7	.2	-.1	-.8	.2	.6	.4	-.4	.1	-.5	-.8
-8.6	-8.1	-7.0	-6.9	-6.6	-7.8	-7.1	-5.4	-6.3	-5.5	-6.7	-8.0	-8.3	-8.5	-7.4	-6.8	-6.4	-6.6	-7.6	-7.6	-6.0	-6.8	-6.0	-5.7	-4.9	-2.1	-.4	-1.0	-5.0	-5.7	-5.8	-6.6	-7.6	-6.9	-8.2	-7.2
-10.4	-9.6	-8.9	-9.1	-8.6	-10.1	-10.3	-8.8	-10.4	-9.8	-10.4	-10.4	-10.1	-9.7	-9.3	-9.0	-9.3	-10.5	-9.3	-10.1	-9.5	-11.5	-10.5	-11.6	-11.4	-11.0	-9.4	-9.0	-9.5	-10.6	-10.3	-11.3	-11.8	-10.7	-11.5	-9.2
-11.4	-10.7	-11.1	-11.2	-10.8	-11.4	-11.4	-11.0	-10.9	-11.2	-11.6	-11.1	-11.1	-10.5	-10.6	-10.6	-11.5	-11.4	-11.5	-12.7	-12.0	-11.8	-11.2	-12.0	-12.2	-10.6	-12.7	-12.2	-11.4	-12.3	-11.6	-12.4	-12.5	-11.8	-11.8	-10.1
-12.2	-11.7	-11.9	-11.8	-11.1	-11.4	-11.2	-11.0	-10.9	-11.5	-11.3	-11.5	-11.8	-10.9	-11.1	-10.7	-11.0	-10.4	-11.0	-11.1	-11.2	-10.4	-10.8	-11.4	-11.4	-11.0	-11.7	-11.7	-11.1	-11.6	-11.6	-12.3	-12.2	-11.9	-11.9	-11.3
-12.0	-12.0	-12.0	-11.8	-11.3	-11.3	-11.0	-11.2	-10.3	-10.8	-11.3	-11.8	-12.3	-11.1	-11.3	-10.8	-10.9	-10.5	-10.6	-10.9	-11.3	-10.5	-11.1	-11.2	-11.2	-11.1	-11.8	-11.3	-11.4	-11.9	-11.8	-12.0	-11.7	-12.6	-11.4	-12.3
-10.4	-10.5	-10.7	-10.6	-10.3	-10.2	-9.6	-10.1	-9.0	-10.0	-9.5	-10.3	-12.0	-10.1	-9.8	-9.4	-9.4	-9.9	-9.7	-10.5	-12.0	-10.3	-10.3	-10.2	-10.3	-10.7	-11.0	-11.0	-10.9	-11.5	-11.6	-11.5	-11.6	-11.7	-10.4	-11.5
-6.7	-6.9	-7.0	-7.0	-7.6	-7.8	-7.4	-7.3	-6.5	-7.1	-7.6	-7.0	-9.1	-7.6	-7.0	-6.6	-5.9	-7.3	-7.2	-8.2	-9.7	-8.5	-8.4	-7.6	-7.3	-7.4	-7.1	-7.1	-6.8	-7.5	-7.9	-7.0	-7.6	-8.1	-6.9	-8.1
-2.8	-3.0	-3.1	-2.5	-3.4	-3.5	-3.4	-3.0	-2.9	-2.8	-2.8	-4.1	-4.8	-4.4	-3.1	-2.9	-1.5	-2.8	-2.4	-4.2	-5.3	-4.9	-4.5	-4.1	-3.3	-3.2	-2.6	-3.3	-3.0	-2.8	-2.9	-2.1	-2.5	-3.8	-3.4	-4.0
-.9	-1.0	-.5	.0	.1	.5	.5	1.0	.5	.8	.8	-.3	.2	-.2	1.0	.9	2.1	2.2	2.5	1.8	1.0	1.1	1.5	1.1	1.2	.8	.6	-.1	.2	.6	.0	.2	-.1	-.6	-1.3	-1.0
2.1	2.1	2.8	3.0	3.6	4.3	4.5	4.7	4.3	4.4	4.2	3.7	4.4	4.4	4.9	5.4	5.9	7.6	7.2	6.9	6.9	6.7	7.2	6.8	6.3	5.9	5.7	5.3	5.0	4.7	4.1	3.5	3.4	2.9	2.0	2.5
7.7	8.2	8.6	8.6	8.8	9.0	9.1	9.1	9.0	8.8	8.7	9.0	8.4	8.4	9.1	10.2	11.3	11.9	11.8	11.8	12.0	12.2	13.1	13.9	12.7	11.6	12.1	12.7	12.6	11.6	11.0	10.8	9.7	8.7	7.9	7.7
12.3	12.7	13.3	14.0	14.8	15.3	14.9	14.5	15.0	14.8	14.1	14.7	13.7	14.0	14.6	16.0	17.7	20.7	22.9	24.3	24.6	25.2	25.9	24.8	21.6	21.5	23.8	25.0	24.2	23.5	23.1	21.9	20.4	18.8	18.1	12.8
16.7	16.5	16.6	17.2	17.6	18.3	19.2	20.8	21.2	19.7	18.3	18.0	18.4	18.9	19.8	21.0	22.3	23.6	24.5	25.3	25.9	26.7	27.6	27.9	27.8	27.7	27.4	26.7	25.6	24.9	24.0	22.9	21.8	20.4	17.9	17.0

Figure 29. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: HIRS15 (700 hPa)
NOAA15, using all observations

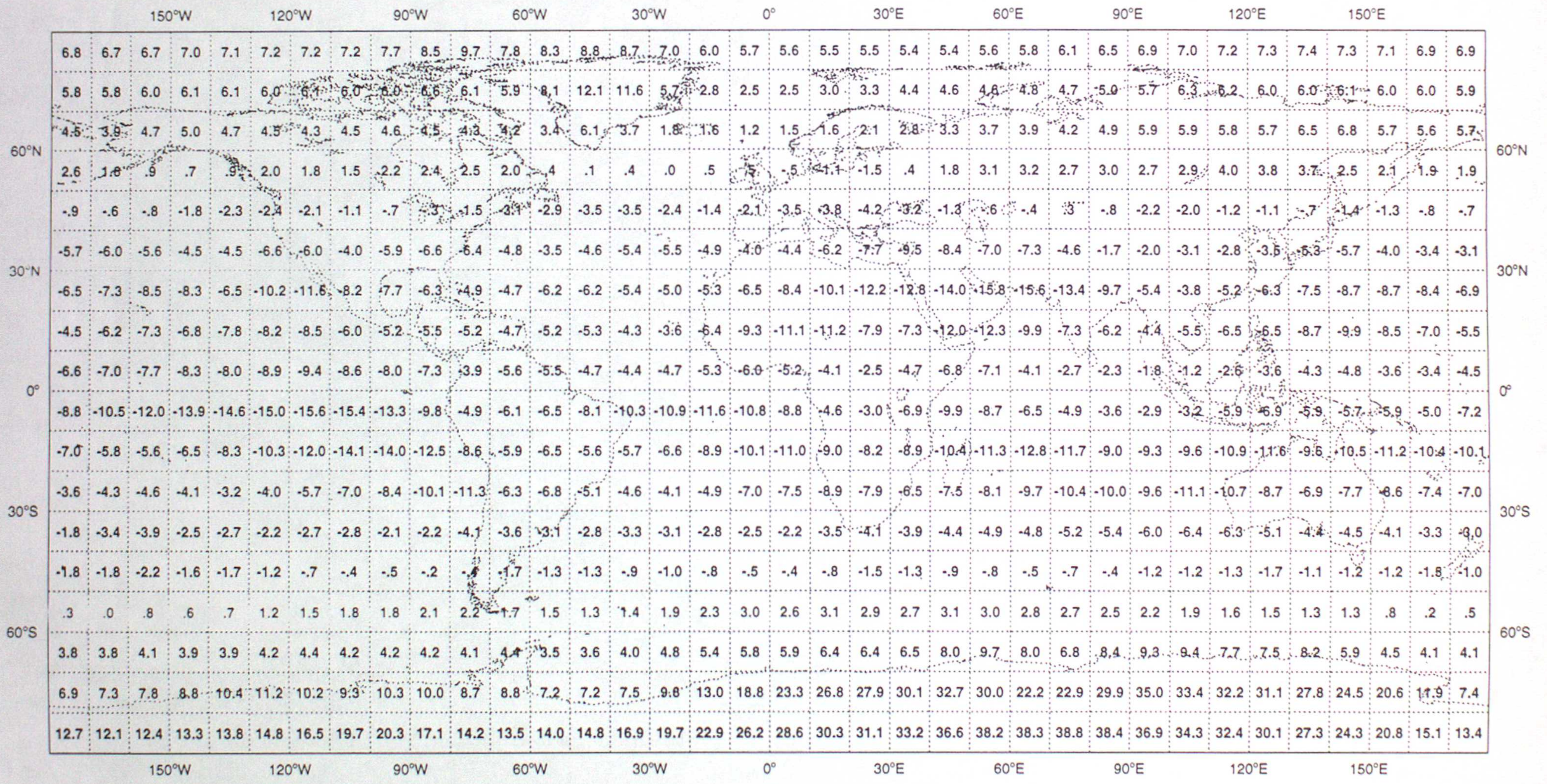


2.7	2.7	2.8	2.8	3.0	2.9	3.0	3.1	3.2	3.4	3.4	3.6	3.9	4.0	4.0	4.0	4.0	4.0	4.0	3.9	3.9	3.9	3.9	3.7	3.3	3.1	3.1	3.1	3.2	3.2	3.2	3.1	3.0	3.0	2.9	2.8
2.9	2.8	2.9	3.2	3.3	3.3	2.9	2.8	3.1	3.4	3.7	4.1	4.9	4.3	3.9	4.2	3.9	3.5	3.3	3.7	3.4	3.2	3.1	3.4	3.1	3.0	3.3	3.7	4.0	4.2	4.3	4.3	3.8	3.3	3.1	2.9
3.5	4.1	4.5	4.6	4.3	4.1	3.9	3.8	3.9	4.0	4.1	4.0	3.8	4.4	5.0	3.9	3.6	3.6	3.5	3.7	3.8	3.7	3.6	3.5	3.6	3.6	3.7	4.2	4.3	4.4	4.4	4.5	4.0	3.6	3.3	3.2
3.8	3.3	3.7	3.8	3.9	3.9	3.7	3.9	3.7	4.2	4.6	4.3	4.1	3.9	3.5	3.5	3.3	3.3	3.7	3.8	4.1	3.7	3.7	3.5	3.5	3.7	4.2	4.2	4.3	3.8	4.0	4.1	3.7	3.5	3.2	3.2
4.4	4.0	4.3	4.0	3.8	4.1	3.7	4.4	4.7	4.7	4.8	4.7	4.7	3.9	3.9	3.8	3.6	3.6	3.5	4.3	4.8	4.3	4.2	4.2	4.3	3.9	4.5	4.1	4.7	4.4	3.6	4.1	3.9	3.9	4.0	4.0
3.3	3.8	3.9	3.6	3.5	3.7	3.9	4.0	3.9	3.8	3.9	3.6	4.0	3.3	3.5	3.5	3.7	4.0	3.7	3.9	4.1	4.2	4.6	3.6	4.1	6.1	4.7	4.1	3.9	4.1	3.9	4.2	4.1	4.0	4.0	3.9
3.2	3.5	3.6	3.3	3.5	3.2	3.4	3.7	3.6	3.6	3.4	3.5	3.6	3.5	3.5	3.5	3.7	4.4	3.4	4.2	4.2	3.8	3.5	3.5	3.6	3.7	5.1	4.3	3.5	3.5	3.6	3.5	3.3	3.6	3.2	3.8
3.2	3.6	3.4	3.2	3.5	3.2	3.3	3.5	3.5	3.4	3.4	3.5	3.3	3.4	3.3	3.5	3.4	3.8	3.3	3.9	4.1	3.6	3.6	3.2	3.3	3.5	3.2	3.2	3.4	3.2	3.5	3.3	3.3	3.5	3.3	3.7
3.1	3.5	3.2	3.2	3.3	3.1	3.2	3.3	3.3	3.2	3.2	3.5	3.3	3.4	3.3	3.4	3.2	3.3	3.4	3.5	3.6	3.3	3.4	3.2	3.3	3.5	3.3	3.2	3.4	3.2	3.5	3.2	3.3	3.4	3.4	3.6
3.4	3.4	3.2	3.3	3.3	3.1	3.2	2.9	3.3	3.1	3.4	3.8	3.5	3.6	3.2	3.4	3.2	3.3	3.4	3.5	3.4	3.6	3.2	3.3	3.4	3.5	3.3	3.4	3.4	3.3	3.5	3.2	3.3	3.2	3.6	3.4
3.6	3.5	3.3	3.4	3.4	3.3	3.4	3.2	3.4	3.0	3.4	4.4	3.7	3.8	3.3	3.4	3.4	3.2	3.5	3.6	3.9	3.8	3.3	3.2	3.4	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.2	3.6	3.3
3.7	3.6	3.4	3.7	3.5	3.5	3.6	3.3	3.5	3.3	3.3	4.8	3.9	3.6	3.5	3.5	3.6	3.3	3.8	3.7	4.3	3.7	3.3	3.3	3.6	3.5	3.6	3.8	3.7	4.0	4.1	3.9	3.8	3.5	3.9	3.6
3.5	3.4	3.1	3.3	3.4	3.4	3.5	3.6	3.6	3.3	3.3	3.9	3.7	3.5	3.9	3.7	3.5	3.8	3.5	4.1	3.9	3.6	3.6	3.7	3.5	3.3	3.6	3.5	3.4	3.4	3.1	3.4	3.7	3.6	3.4	3.5
3.2	3.0	3.0	3.1	3.2	3.4	3.5	3.4	3.3	3.4	3.4	3.4	3.4	3.5	3.5	3.9	3.5	3.7	3.5	3.9	4.1	3.7	3.9	4.0	3.9	3.8	3.6	3.3	3.3	3.0	2.9	2.9	3.2	3.2	3.1	3.4
3.2	3.4	3.2	3.2	3.6	3.7	3.6	3.6	3.9	3.6	3.2	3.7	4.0	3.8	3.4	3.8	4.3	3.6	3.6	3.6	4.2	3.8	3.2	3.6	3.6	3.4	3.0	3.3	3.1	3.0	2.8	2.8	2.9	2.9	2.9	2.9
3.8	3.8	3.9	3.9	3.7	3.7	3.7	3.5	3.5	3.7	3.6	3.8	3.9	3.8	3.8	3.7	4.0	3.6	3.8	4.0	4.1	4.0	4.3	4.7	4.2	3.6	4.4	4.8	4.8	4.4	4.6	5.1	4.2	3.7	3.6	3.7
2.4	2.4	2.6	2.9	3.4	3.7	3.6	3.5	3.5	3.8	3.4	3.0	3.3	3.3	3.3	4.0	4.5	4.7	4.7	5.0	5.4	5.0	4.2	3.6	4.4	4.4	3.5	3.3	3.2	2.9	2.7	2.3	2.4	2.5	2.9	2.5
4.0	3.7	3.6	3.5	3.5	3.3	3.1	2.7	2.4	2.8	3.3	3.6	3.7	3.7	3.7	3.7	3.5	3.4	3.3	3.3	3.3	3.3	3.3	3.5	3.6	3.6	3.7	3.6	3.5	3.4	3.2	3.0	2.8	2.9	3.2	4.1	4.1

Figure 30. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: HIRS11 (500 - 700 hPa)

NOAA15, using all observations

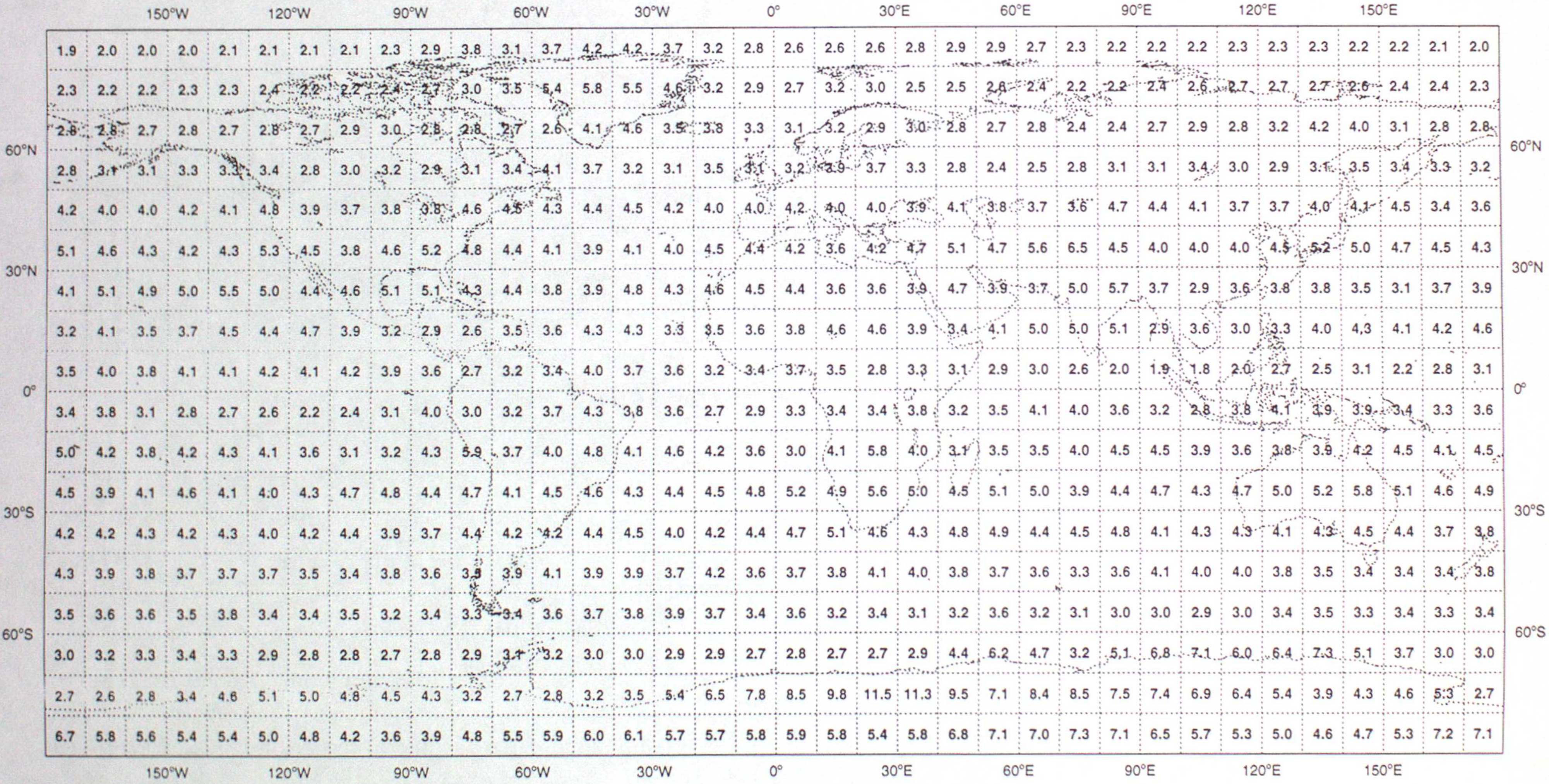


6.8	6.7	6.7	7.0	7.1	7.2	7.2	7.2	7.7	8.5	9.7	7.8	8.3	8.8	8.7	7.0	6.0	5.7	5.6	5.5	5.5	5.4	5.4	5.6	5.8	6.1	6.5	6.9	7.0	7.2	7.3	7.4	7.3	7.1	6.9	6.9
5.8	5.8	6.0	6.1	6.1	6.0	6.1	6.0	6.0	6.6	6.1	5.9	8.1	12.1	11.6	5.7	2.8	2.5	2.5	3.0	3.3	4.4	4.6	4.6	4.8	4.7	5.0	5.7	6.3	6.2	6.0	6.0	6.1	6.0	6.0	5.9
4.5	3.9	4.7	5.0	4.7	4.5	4.3	4.5	4.6	4.5	4.3	4.2	3.4	6.1	3.7	1.8	1.6	1.2	1.5	1.6	2.1	2.8	3.3	3.7	3.9	4.2	4.9	5.9	5.9	5.8	5.7	6.5	6.8	5.7	5.6	5.7
2.6	1.8	.9	.7	.9	2.0	1.8	1.5	2.2	2.4	2.5	2.0	.4	.1	.4	.0	.5	.5	-.5	-1.1	-1.5	.4	1.8	3.1	3.2	2.7	3.0	2.7	2.9	4.0	3.8	3.7	2.5	2.1	1.9	1.9
-.9	-.6	-.8	-1.8	-2.3	-2.4	-2.1	-1.1	-.7	-.3	-1.5	-3.1	-2.9	-3.5	-3.5	-2.4	-1.4	-2.1	-3.5	-3.8	-4.2	-3.2	-1.3	-.6	-.4	.3	-.8	-2.2	-2.0	-1.2	-1.1	-.7	-1.4	-1.3	-.8	-.7
-5.7	-6.0	-5.6	-4.5	-4.5	-6.6	-6.0	-4.0	-5.9	-6.6	-6.4	-4.8	-3.5	-4.6	-5.4	-5.5	-4.9	-4.0	-4.4	-6.2	-7.7	-9.5	-8.4	-7.0	-7.3	-4.6	-1.7	-2.0	-3.1	-2.8	-3.5	-5.3	-5.7	-4.0	-3.4	-3.1
-6.5	-7.3	-8.5	-8.3	-6.5	-10.2	-11.6	-8.2	-7.7	-6.3	-4.9	-4.7	-6.2	-6.2	-5.4	-5.0	-5.3	-6.5	-8.4	-10.1	-12.2	-12.8	-14.0	-15.8	-15.6	-13.4	-9.7	-5.4	-3.8	-5.2	-6.3	-7.5	-8.7	-8.7	-8.4	-6.9
-4.5	-6.2	-7.3	-6.8	-7.8	-8.2	-8.5	-6.0	-5.2	-5.5	-5.2	-4.7	-5.2	-5.3	-4.3	-3.6	-6.4	-9.3	-11.1	-11.2	-7.9	-7.3	-12.0	-12.3	-9.9	-7.3	-6.2	-4.4	-5.5	-6.5	-6.5	-8.7	-9.9	-8.5	-7.0	-5.5
-6.6	-7.0	-7.7	-8.3	-8.0	-8.9	-9.4	-8.6	-8.0	-7.3	-3.9	-5.6	-5.5	-4.7	-4.4	-4.7	-5.3	-6.0	-5.2	-4.1	-2.5	-4.7	-6.8	-7.1	-4.1	-2.7	-2.3	-1.8	-1.2	-2.6	-3.6	-4.3	-4.8	-3.6	-3.4	-4.5
-8.8	-10.5	-12.0	-13.9	-14.6	-15.0	-15.6	-15.4	-13.3	-9.8	-4.9	-6.1	-6.5	-8.1	-10.3	-10.9	-11.6	-10.8	-8.8	-4.6	-3.0	-6.9	-9.9	-8.7	-6.5	-4.9	-3.6	-2.9	-3.2	-5.9	-6.9	-5.9	-5.7	-5.9	-5.0	-7.2
-7.0	-5.8	-5.6	-6.5	-8.3	-10.3	-12.0	-14.1	-14.0	-12.5	-8.6	-5.9	-6.5	-5.6	-5.7	-6.6	-8.9	-10.1	-11.0	-9.0	-8.2	-8.9	-10.4	-11.3	-12.8	-11.7	-9.0	-9.3	-9.6	-10.9	-11.6	-9.6	-10.5	-11.2	-10.4	-10.1
-3.6	-4.3	-4.6	-4.1	-3.2	-4.0	-5.7	-7.0	-8.4	-10.1	-11.3	-6.3	-6.8	-5.1	-4.6	-4.1	-4.9	-7.0	-7.5	-8.9	-7.9	-6.5	-7.5	-8.1	-9.7	-10.4	-10.0	-9.6	-11.1	-10.7	-8.7	-6.9	-7.7	-8.6	-7.4	-7.0
-1.8	-3.4	-3.9	-2.5	-2.7	-2.2	-2.7	-2.8	-2.1	-2.2	-4.1	-3.6	-3.1	-2.8	-3.3	-3.1	-2.8	-2.5	-2.2	-3.5	-4.1	-3.9	-4.4	-4.9	-4.8	-5.2	-5.4	-6.0	-6.4	-6.3	-5.1	-4.4	-4.5	-4.1	-3.3	-3.0
-1.8	-1.8	-2.2	-1.6	-1.7	-1.2	-.7	-.4	-.5	-.2	-.4	-1.7	-1.3	-1.3	-.9	-1.0	-.8	-.5	-.4	-.8	-1.5	-1.3	-.9	-.8	-.5	-.7	-.4	-1.2	-1.2	-1.3	-1.7	-1.1	-1.2	-1.2	-1.8	-1.0
.3	.0	.8	.6	.7	1.2	1.5	1.8	1.8	2.1	2.2	1.7	1.5	1.3	1.4	1.9	2.3	3.0	2.6	3.1	2.9	2.7	3.1	3.0	2.8	2.7	2.5	2.2	1.9	1.6	1.5	1.3	1.3	.8	.2	.5
3.8	3.8	4.1	3.9	3.9	4.2	4.4	4.2	4.2	4.2	4.1	4.4	3.5	3.6	4.0	4.8	5.4	5.8	5.9	6.4	6.4	6.5	8.0	9.7	8.0	6.8	8.4	9.3	9.4	7.7	7.5	8.2	5.9	4.5	4.1	4.1
6.9	7.3	7.8	8.8	10.4	11.2	10.2	9.3	10.3	10.0	8.7	8.8	7.2	7.2	7.5	9.8	13.0	18.8	23.3	26.8	27.9	30.1	32.7	30.0	22.2	22.9	29.9	35.0	33.4	32.2	31.1	27.8	24.5	20.6	11.9	7.4
12.7	12.1	12.4	13.3	13.8	14.8	16.5	19.7	20.3	17.1	14.2	13.5	14.0	14.8	16.9	19.7	22.9	26.2	28.6	30.3	31.1	33.2	36.6	38.2	38.3	38.8	38.4	36.9	34.3	32.4	30.1	27.3	24.3	20.8	15.1	13.4

Figure 31. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: HIRS11 (500 - 700 hPa)

NOAA15, using all observations

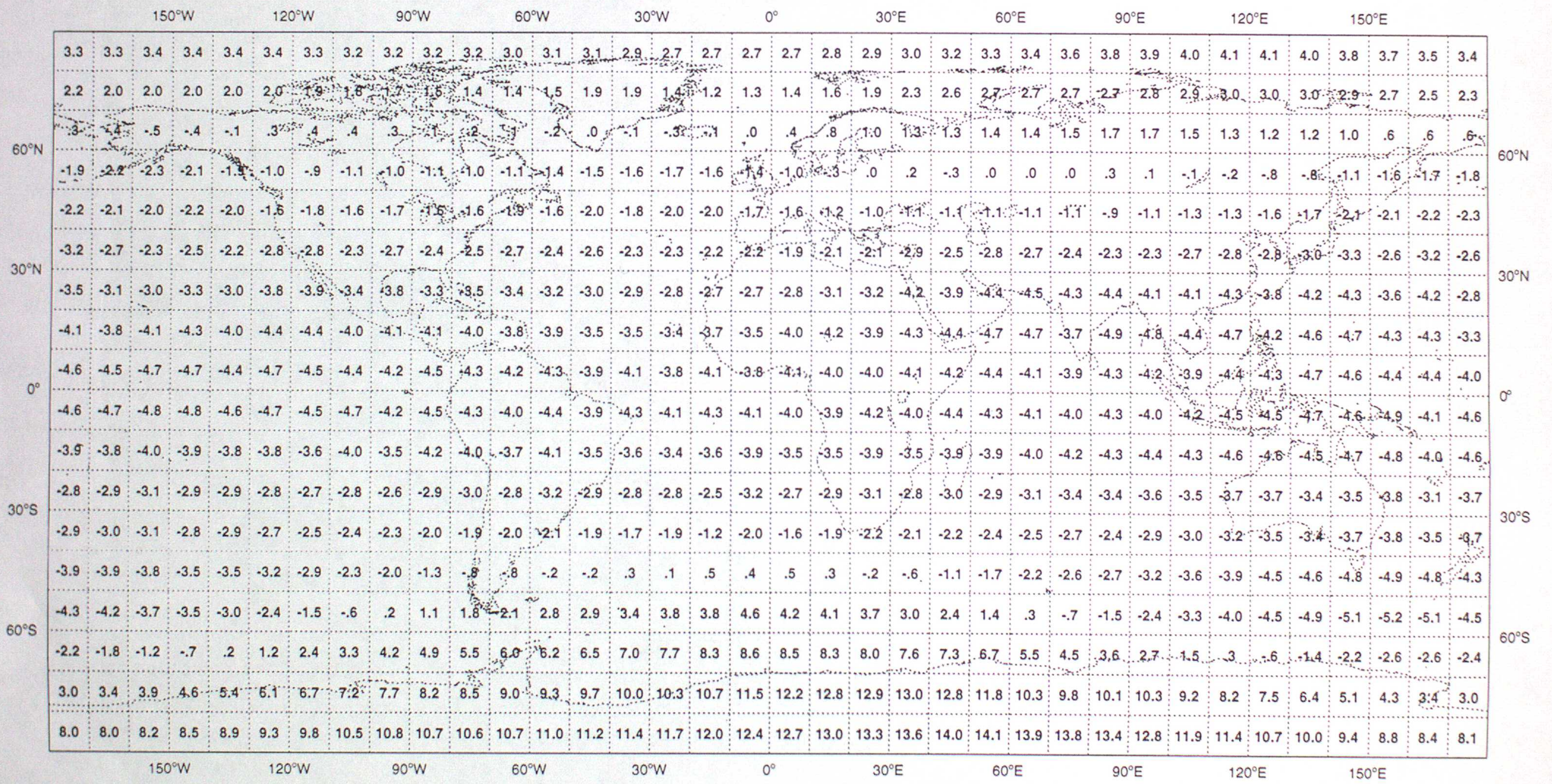


1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.3	2.9	3.8	3.1	3.7	4.2	4.2	3.7	3.2	2.8	2.6	2.6	2.6	2.8	2.9	2.9	2.7	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.1	2.0
2.3	2.2	2.2	2.3	2.3	2.4	2.2	2.2	2.4	2.7	3.0	3.5	5.4	5.8	5.5	4.6	3.2	2.9	2.7	3.2	3.0	2.5	2.5	2.8	2.4	2.2	2.2	2.4	2.6	2.7	2.7	2.7	2.6	2.4	2.4	2.3
2.8	2.8	2.7	2.8	2.7	2.8	2.7	2.9	3.0	2.8	2.8	2.7	2.6	4.1	4.6	3.5	3.8	3.3	3.1	3.2	2.9	3.0	2.8	2.7	2.8	2.4	2.4	2.7	2.9	2.8	3.2	4.2	4.0	3.1	2.8	2.8
2.8	3.1	3.1	3.3	3.3	3.4	2.8	3.0	3.2	2.9	3.1	3.4	4.1	3.7	3.2	3.1	3.5	3.1	3.2	3.9	3.7	3.3	2.8	2.4	2.5	2.8	3.1	3.1	3.4	3.0	2.9	3.1	3.5	3.4	3.3	3.2
4.2	4.0	4.0	4.2	4.1	4.8	3.9	3.7	3.8	3.8	4.6	4.5	4.3	4.4	4.5	4.2	4.0	4.0	4.2	4.0	4.0	3.9	4.1	3.8	3.7	3.6	4.7	4.4	4.1	3.7	3.7	4.0	4.1	4.5	3.4	3.6
5.1	4.6	4.3	4.2	4.3	5.3	4.5	3.8	4.6	5.2	4.8	4.4	4.1	3.9	4.1	4.0	4.5	4.4	4.2	3.6	4.2	4.7	5.1	4.7	5.6	6.5	4.5	4.0	4.0	4.0	4.5	5.2	5.0	4.7	4.5	4.3
4.1	5.1	4.9	5.0	5.5	5.0	4.4	4.6	5.1	5.1	4.3	4.4	3.8	3.9	4.8	4.3	4.6	4.5	4.4	3.6	3.6	3.9	4.7	3.9	3.7	5.0	5.7	3.7	2.9	3.6	3.8	3.8	3.5	3.1	3.7	3.9
3.2	4.1	3.5	3.7	4.5	4.4	4.7	3.9	3.2	2.9	2.6	3.5	3.6	4.3	4.3	3.3	3.5	3.6	3.8	4.6	4.6	3.9	3.4	4.1	5.0	5.0	5.1	2.9	3.6	3.0	3.3	4.0	4.3	4.1	4.2	4.6
3.5	4.0	3.8	4.1	4.1	4.2	4.1	4.2	3.9	3.6	2.7	3.2	3.4	4.0	3.7	3.6	3.2	3.4	3.7	3.5	2.8	3.3	3.1	2.9	3.0	2.6	2.0	1.9	1.8	2.0	2.7	2.5	3.1	2.2	2.8	3.1
3.4	3.8	3.1	2.8	2.7	2.6	2.2	2.4	3.1	4.0	3.0	3.2	3.7	4.3	3.8	3.6	2.7	2.9	3.3	3.4	3.4	3.8	3.2	3.5	4.1	4.0	3.6	3.2	2.8	3.8	4.1	3.9	3.9	3.4	3.3	3.6
5.0	4.2	3.8	4.2	4.3	4.1	3.6	3.1	3.2	4.3	5.9	3.7	4.0	4.8	4.1	4.6	4.2	3.6	3.0	4.1	5.8	4.0	3.1	3.5	3.5	4.0	4.5	4.5	3.9	3.6	3.8	3.9	4.2	4.5	4.1	4.5
4.5	3.9	4.1	4.6	4.1	4.0	4.3	4.7	4.8	4.4	4.7	4.1	4.5	4.6	4.3	4.4	4.5	4.8	5.2	4.9	5.6	5.0	4.5	5.1	5.0	3.9	4.4	4.7	4.3	4.7	5.0	5.2	5.8	5.1	4.6	4.9
4.2	4.2	4.3	4.2	4.3	4.0	4.2	4.4	3.9	3.7	4.4	4.2	4.2	4.4	4.5	4.0	4.2	4.4	4.7	5.1	4.6	4.3	4.8	4.9	4.4	4.5	4.8	4.1	4.3	4.3	4.1	4.3	4.5	4.4	3.7	3.8
4.3	3.9	3.8	3.7	3.7	3.7	3.5	3.4	3.8	3.6	3.5	3.9	4.1	3.9	3.9	3.7	4.2	3.6	3.7	3.8	4.1	4.0	3.8	3.7	3.6	3.3	3.6	4.1	4.0	4.0	3.8	3.5	3.4	3.4	3.4	3.8
3.5	3.6	3.6	3.5	3.8	3.4	3.4	3.5	3.2	3.4	3.3	3.4	3.6	3.7	3.8	3.9	3.7	3.4	3.6	3.2	3.4	3.1	3.2	3.6	3.2	3.1	3.0	3.0	2.9	3.0	3.4	3.5	3.3	3.4	3.3	3.4
3.0	3.2	3.3	3.4	3.3	2.9	2.8	2.8	2.7	2.8	2.9	3.1	3.2	3.0	3.0	2.9	2.9	2.7	2.8	2.7	2.7	2.9	4.4	6.2	4.7	3.2	5.1	6.8	7.1	6.0	6.4	7.3	5.1	3.7	3.0	3.0
2.7	2.6	2.8	3.4	4.6	5.1	5.0	4.8	4.5	4.3	3.2	2.7	2.8	3.2	3.5	5.4	6.5	7.8	8.5	9.8	11.5	11.3	9.5	7.1	8.4	8.5	7.5	7.4	6.9	6.4	5.4	3.9	4.3	4.6	5.3	2.7
6.7	5.8	5.6	5.4	5.4	5.0	4.8	4.2	3.6	3.9	4.8	5.5	5.9	6.0	6.1	5.7	5.7	5.8	5.9	5.8	5.4	5.8	6.8	7.1	7.0	7.3	7.1	6.5	5.7	5.3	5.0	4.6	4.7	5.3	7.2	7.1

Figure 32. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: HIRS4 (400 hPa)

NOAA15, using all observations



3.3	3.3	3.4	3.4	3.4	3.4	3.3	3.2	3.2	3.2	3.2	3.0	3.1	3.1	2.9	2.7	2.7	2.7	2.7	2.8	2.9	3.0	3.2	3.3	3.4	3.6	3.8	3.9	4.0	4.1	4.1	4.0	3.8	3.7	3.5	3.4
2.2	2.0	2.0	2.0	2.0	2.0	1.9	1.8	1.7	1.5	1.4	1.4	1.5	1.9	1.9	1.4	1.2	1.3	1.4	1.6	1.9	2.3	2.6	2.7	2.7	2.7	2.7	2.8	2.9	3.0	3.0	3.0	2.9	2.7	2.5	2.3
.3	-.4	-.5	-.4	-.1	.3	.4	.4	.3	.1	.2	.1	-.2	.0	-.1	-.3	-.1	.0	.4	.8	1.0	1.3	1.3	1.4	1.4	1.5	1.7	1.7	1.5	1.3	1.2	1.2	1.0	.6	.6	.6
-1.9	-2.2	-2.3	-2.1	-1.5	-1.0	-.9	-1.1	-1.0	-1.1	-1.0	-1.1	-1.4	-1.5	-1.6	-1.7	-1.6	-1.4	-1.0	-.3	.0	.2	-.3	.0	.0	.0	.3	.1	-.1	-.2	-.8	-.8	-1.1	-1.6	-1.7	-1.8
-2.2	-2.1	-2.0	-2.2	-2.0	-1.6	-1.8	-1.6	-1.7	-1.5	-1.6	-1.9	-1.6	-2.0	-1.8	-2.0	-2.0	-1.7	-1.6	-1.2	-1.0	-1.1	-1.1	-1.1	-1.1	-1.1	-.9	-1.1	-1.3	-1.3	-1.6	-1.7	-2.1	-2.1	-2.2	-2.3
-3.2	-2.7	-2.3	-2.5	-2.2	-2.8	-2.8	-2.3	-2.7	-2.4	-2.5	-2.7	-2.4	-2.6	-2.3	-2.3	-2.2	-2.2	-1.9	-2.1	-2.1	-2.9	-2.5	-2.8	-2.7	-2.4	-2.3	-2.3	-2.7	-2.8	-2.8	-3.0	-3.3	-2.6	-3.2	-2.6
-3.5	-3.1	-3.0	-3.3	-3.0	-3.8	-3.9	-3.4	-3.8	-3.3	-3.5	-3.4	-3.2	-3.0	-2.9	-2.8	-2.7	-2.7	-2.8	-3.1	-3.2	-4.2	-3.9	-4.4	-4.5	-4.3	-4.4	-4.1	-4.1	-4.3	-3.8	-4.2	-4.3	-3.6	-4.2	-2.8
-4.1	-3.8	-4.1	-4.3	-4.0	-4.4	-4.4	-4.0	-4.1	-4.1	-4.0	-3.8	-3.9	-3.5	-3.5	-3.4	-3.7	-3.5	-4.0	-4.2	-3.9	-4.3	-4.4	-4.7	-4.7	-3.7	-4.9	-4.8	-4.4	-4.7	-4.2	-4.6	-4.7	-4.3	-4.3	-3.3
-4.6	-4.5	-4.7	-4.7	-4.4	-4.7	-4.5	-4.4	-4.2	-4.5	-4.3	-4.2	-4.3	-3.9	-4.1	-3.8	-4.1	-3.8	-4.1	-4.0	-4.0	-4.1	-4.2	-4.4	-4.1	-3.9	-4.3	-4.2	-3.9	-4.4	-4.3	-4.7	-4.6	-4.4	-4.4	-4.0
-4.6	-4.7	-4.8	-4.8	-4.6	-4.7	-4.5	-4.7	-4.2	-4.5	-4.3	-4.0	-4.4	-3.9	-4.3	-4.1	-4.3	-4.1	-4.0	-3.9	-4.2	-4.0	-4.4	-4.3	-4.1	-4.0	-4.3	-4.0	-4.2	-4.5	-4.5	-4.7	-4.6	-4.9	-4.1	-4.6
-3.9	-3.8	-4.0	-3.9	-3.8	-3.8	-3.6	-4.0	-3.5	-4.2	-4.0	-3.7	-4.1	-3.5	-3.6	-3.4	-3.6	-3.9	-3.5	-3.5	-3.9	-3.5	-3.9	-3.9	-4.0	-4.2	-4.3	-4.4	-4.3	-4.6	-4.6	-4.5	-4.7	-4.8	-4.0	-4.6
-2.8	-2.9	-3.1	-2.9	-2.9	-2.8	-2.7	-2.8	-2.6	-2.9	-3.0	-2.8	-3.2	-2.9	-2.8	-2.8	-2.5	-3.2	-2.7	-2.9	-3.1	-2.8	-3.0	-2.9	-3.1	-3.4	-3.4	-3.6	-3.5	-3.7	-3.7	-3.4	-3.5	-3.8	-3.1	-3.7
-2.9	-3.0	-3.1	-2.8	-2.9	-2.7	-2.5	-2.4	-2.3	-2.0	-1.9	-2.0	-2.1	-1.9	-1.7	-1.9	-1.2	-2.0	-1.6	-1.9	-2.2	-2.1	-2.2	-2.4	-2.5	-2.7	-2.4	-2.9	-3.0	-3.2	-3.5	-3.4	-3.7	-3.8	-3.5	-3.7
-3.9	-3.9	-3.8	-3.5	-3.5	-3.2	-2.9	-2.3	-2.0	-1.3	-.8	-.8	-.2	-.2	.3	.1	.5	.4	.5	.3	-.2	-.6	-1.1	-1.7	-2.2	-2.6	-2.7	-3.2	-3.6	-3.9	-4.5	-4.6	-4.8	-4.9	-4.8	-4.3
-4.3	-4.2	-3.7	-3.5	-3.0	-2.4	-1.5	-.6	.2	1.1	1.8	2.1	2.8	2.9	3.4	3.8	3.8	4.6	4.2	4.1	3.7	3.0	2.4	1.4	.3	-.7	-1.5	-2.4	-3.3	-4.0	-4.5	-4.9	-5.1	-5.2	-5.1	-4.5
-2.2	-1.8	-1.2	-.7	.2	1.2	2.4	3.3	4.2	4.9	5.5	6.0	6.2	6.5	7.0	7.7	8.3	8.6	8.5	8.3	8.0	7.6	7.3	6.7	5.5	4.5	3.6	2.7	1.5	.3	-.6	-1.4	-2.2	-2.6	-2.6	-2.4
3.0	3.4	3.9	4.6	5.4	6.1	6.7	7.2	7.7	8.2	8.5	9.0	9.3	9.7	10.0	10.3	10.7	11.5	12.2	12.8	12.9	13.0	12.8	11.8	10.3	9.8	10.1	10.3	9.2	8.2	7.5	6.4	5.1	4.3	3.4	3.0
8.0	8.0	8.2	8.5	8.9	9.3	9.8	10.5	10.8	10.7	10.6	10.7	11.0	11.2	11.4	11.7	12.0	12.4	12.7	13.0	13.3	13.6	14.0	14.1	13.9	13.8	13.4	12.8	11.9	11.4	10.7	10.0	9.4	8.8	8.4	8.1

Figure 33. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: HIRS4 (400 hPa)
NOAA15, using all observations

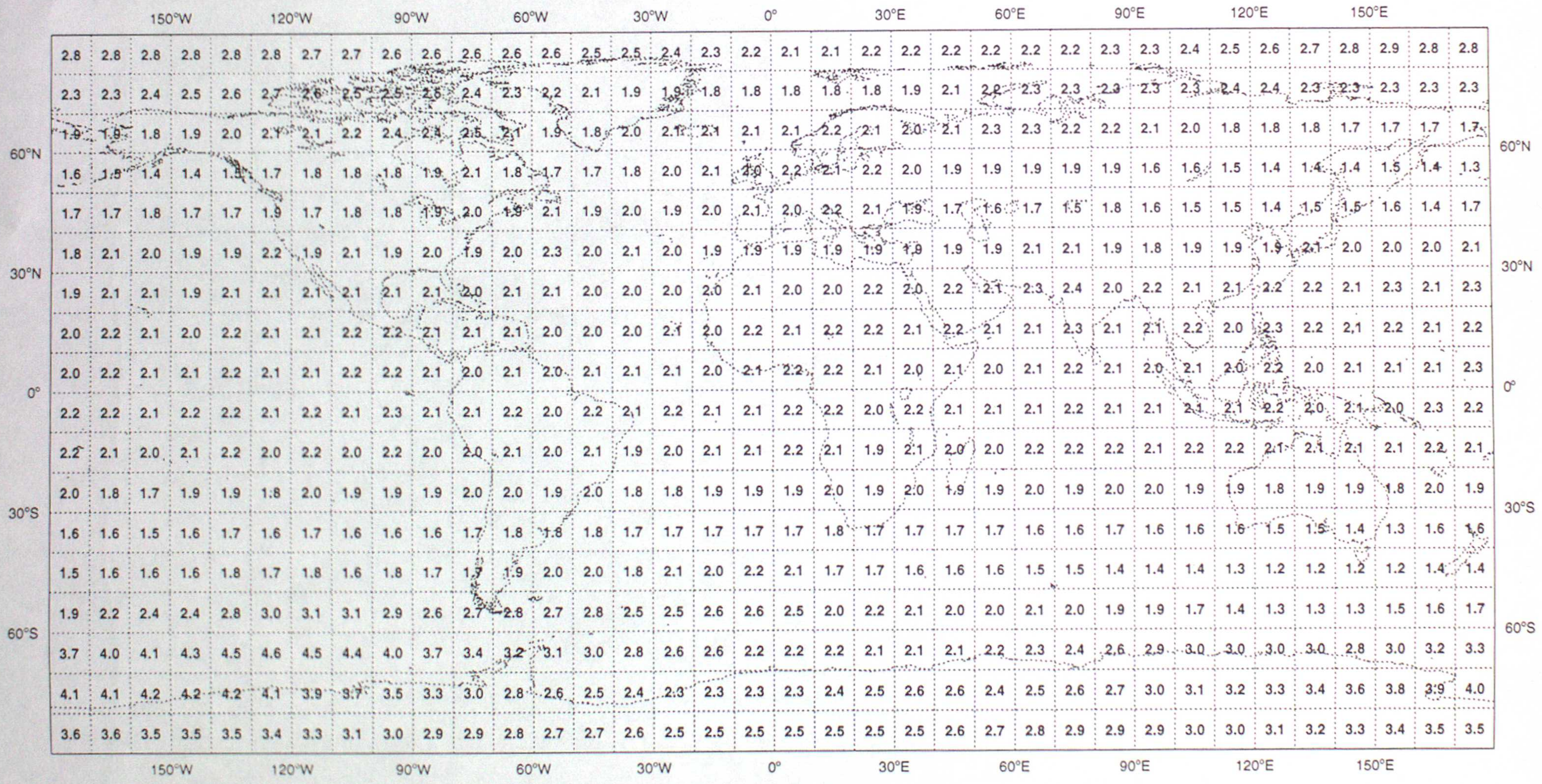
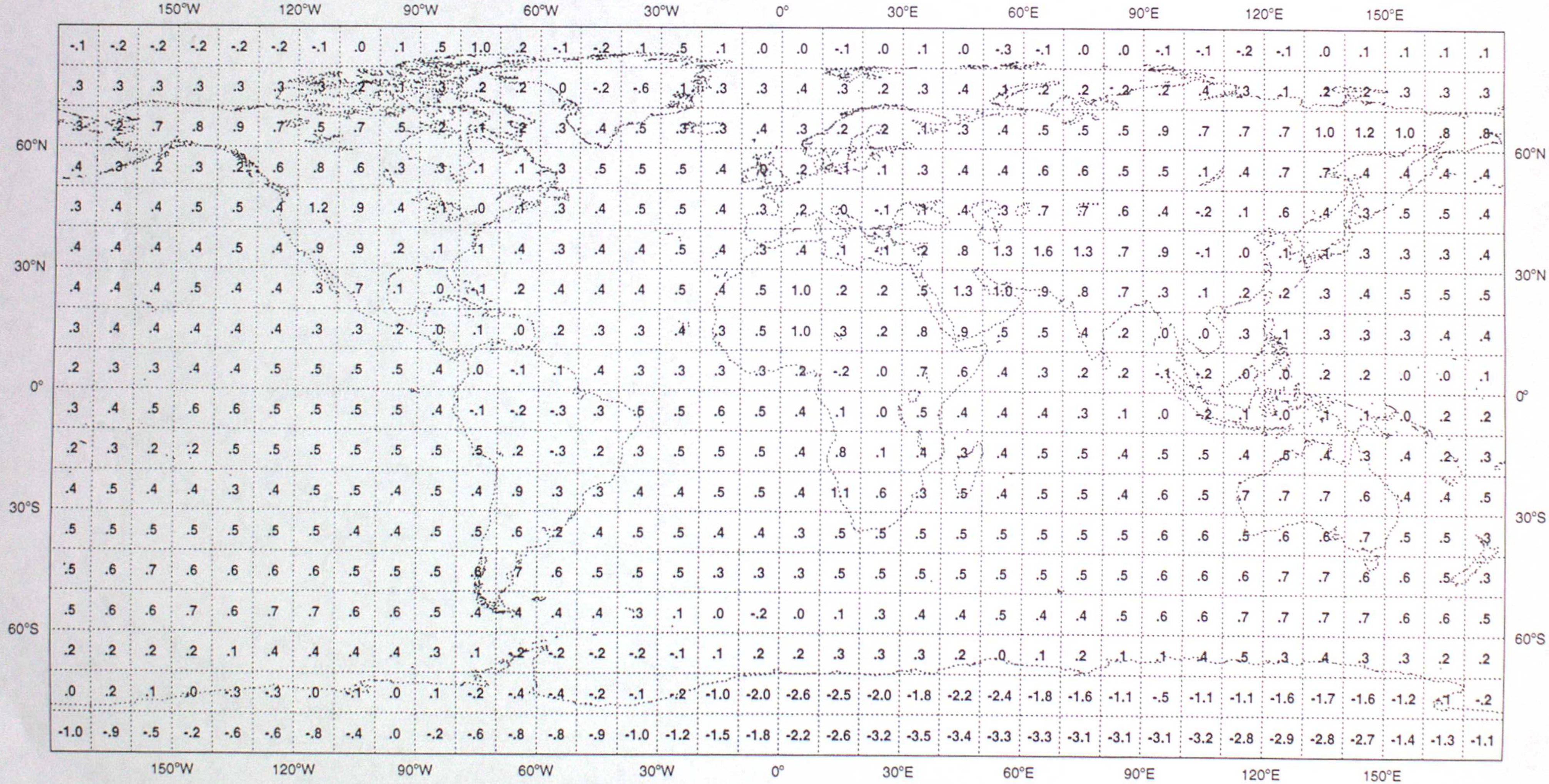

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
2.8 2.8 2.8 2.8 2.8 2.8 2.7 2.7 2.6 2.6 2.6 2.6 2.6 2.5 2.5 2.4 2.3 2.2 2.1 2.1 2.2 2.2 2.2 2.2 2.2 2.2 2.3 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.8 2.8
2.3 2.3 2.4 2.5 2.6 2.7 2.6 2.5 2.5 2.5 2.4 2.3 2.2 2.1 1.9 1.9 1.8 1.8 1.8 1.8 1.8 1.9 2.1 2.2 2.3 2.3 2.3 2.3 2.3 2.4 2.4 2.3 2.3 2.3 2.3 2.3
1.9 1.9 1.8 1.9 2.0 2.1 2.1 2.2 2.4 2.4 2.5 2.1 1.9 1.8 2.0 2.1 2.1 2.1 2.1 2.2 2.1 2.0 2.1 2.3 2.3 2.2 2.2 2.1 2.0 1.8 1.8 1.8 1.7 1.7 1.7 1.7
1.6 1.5 1.4 1.4 1.5 1.7 1.8 1.8 1.8 1.9 2.1 1.8 1.7 1.7 1.8 2.0 2.1 2.0 2.2 2.1 2.2 2.0 1.9 1.9 1.9 1.9 1.9 1.6 1.6 1.5 1.4 1.4 1.4 1.5 1.4 1.3
1.7 1.7 1.8 1.7 1.7 1.9 1.7 1.8 1.8 1.9 2.0 1.9 2.1 1.9 2.0 1.9 2.0 2.1 2.0 2.2 2.1 1.9 1.7 1.6 1.7 1.5 1.8 1.6 1.5 1.5 1.4 1.5 1.5 1.6 1.4 1.7
1.8 2.1 2.0 1.9 1.9 2.2 1.9 2.1 1.9 2.0 1.9 2.0 2.3 2.0 2.1 2.0 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 2.1 2.1 1.9 1.8 1.9 1.9 1.9 2.1 2.0 2.0 2.0 2.1
1.9 2.1 2.1 1.9 2.1 2.1 2.1 2.1 2.1 2.1 2.0 2.1 2.1 2.0 2.0 2.0 2.0 2.1 2.0 2.0 2.2 2.0 2.2 2.1 2.3 2.4 2.0 2.2 2.1 2.1 2.2 2.2 2.1 2.3 2.1 2.3
2.0 2.2 2.1 2.0 2.2 2.1 2.1 2.2 2.2 2.1 2.1 2.1 2.0 2.0 2.0 2.1 2.0 2.2 2.1 2.2 2.2 2.1 2.2 2.1 2.1 2.3 2.1 2.1 2.2 2.0 2.3 2.2 2.1 2.2 2.1 2.2
2.0 2.2 2.1 2.1 2.2 2.1 2.1 2.2 2.2 2.1 2.0 2.1 2.0 2.1 2.1 2.1 2.0 2.1 2.2 2.2 2.1 2.0 2.1 2.0 2.1 2.2 2.1 2.0 2.1 2.0 2.2 2.0 2.1 2.1 2.1 2.3
2.2 2.2 2.1 2.2 2.2 2.1 2.2 2.1 2.3 2.1 2.1 2.2 2.0 2.2 2.1 2.2 2.1 2.1 2.2 2.2 2.0 2.2 2.1 2.1 2.1 2.2 2.1 2.1 2.1 2.1 2.2 2.0 2.1 2.0 2.3 2.2
2.2 2.1 2.0 2.1 2.2 2.0 2.2 2.0 2.2 2.0 2.0 2.1 2.0 2.1 1.9 2.0 2.1 2.1 2.2 2.1 1.9 2.1 2.0 2.0 2.2 2.2 2.2 2.1 2.2 2.2 2.1 2.1 2.1 2.1 2.2 2.1
2.0 1.8 1.7 1.9 1.9 1.8 2.0 1.9 1.9 1.9 2.0 2.0 1.9 2.0 1.8 1.8 1.9 1.9 1.9 2.0 1.9 2.0 1.9 1.9 2.0 1.9 2.0 2.0 1.9 1.9 1.8 1.9 1.9 1.8 2.0 1.9
1.6 1.6 1.5 1.6 1.7 1.6 1.7 1.6 1.6 1.6 1.7 1.8 1.8 1.8 1.7 1.7 1.7 1.7 1.7 1.8 1.7 1.7 1.7 1.7 1.6 1.6 1.7 1.6 1.6 1.6 1.5 1.5 1.4 1.3 1.6 1.6
1.5 1.6 1.6 1.6 1.8 1.7 1.8 1.6 1.8 1.7 1.7 1.9 2.0 2.0 1.8 2.1 2.0 2.2 2.1 1.7 1.7 1.6 1.6 1.6 1.5 1.5 1.4 1.4 1.4 1.3 1.2 1.2 1.2 1.2 1.4 1.4
1.9 2.2 2.4 2.4 2.8 3.0 3.1 3.1 2.9 2.6 2.7 2.8 2.7 2.8 2.5 2.5 2.6 2.6 2.5 2.0 2.2 2.1 2.0 2.0 2.1 2.0 1.9 1.9 1.7 1.4 1.3 1.3 1.3 1.5 1.6 1.7
3.7 4.0 4.1 4.3 4.5 4.6 4.5 4.4 4.0 3.7 3.4 3.2 3.1 3.0 2.8 2.6 2.6 2.2 2.2 2.2 2.1 2.1 2.1 2.2 2.3 2.4 2.6 2.9 3.0 3.0 3.0 3.0 2.8 3.0 3.2 3.3
4.1 4.1 4.2 4.2 4.2 4.1 3.9 3.7 3.5 3.3 3.0 2.8 2.6 2.5 2.4 2.3 2.3 2.3 2.3 2.4 2.5 2.6 2.6 2.4 2.5 2.6 2.7 3.0 3.1 3.2 3.3 3.4 3.6 3.8 3.9 4.0
3.6 3.6 3.5 3.5 3.5 3.4 3.3 3.1 3.0 2.9 2.9 2.8 2.7 2.7 2.6 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.6 2.7 2.8 2.9 2.9 2.9 3.0 3.0 3.1 3.2 3.3 3.4 3.5 3.5

Figure 34. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



-.1	-.2	-.2	-.2	-.2	-.2	-.1	.0	.1	.5	1.0	.2	-.1	-.2	.1	.5	.1	.0	.0	-.1	.0	.1	.0	-.3	-.1	.0	.0	-.1	-.1	-.2	-.1	.0	.1	.1	.1	.1
.3	.3	.3	.3	.3	.3	.3	.2	.1	.3	.2	.2	.0	-.2	-.6	.1	.3	.3	.4	.3	.2	.3	.4	.1	.2	.2	.2	.2	.4	.3	.1	.2	.2	.3	.3	.3
.3	.2	.7	.8	.9	.7	.5	.7	.5	.2	.1	.2	.3	.4	.5	.3	.3	.4	.3	.2	.2	.1	.3	.4	.5	.5	.5	.9	.7	.7	.7	1.0	1.2	1.0	.8	.8
.4	.3	.2	.3	.2	.6	.8	.6	.3	.3	.1	.1	.3	.5	.5	.5	.4	.0	.2	.1	.1	.3	.4	.4	.6	.6	.5	.5	.1	.4	.7	.7	.4	.4	.4	.4
.3	.4	.4	.5	.5	.4	1.2	.9	.4	-.1	.0	.1	.3	.4	.5	.5	.4	.3	.2	.0	-.1	.1	.4	.3	.7	.7	.6	.4	-.2	.1	.6	.4	.3	.5	.5	.4
.4	.4	.4	.4	.5	.4	.9	.9	.2	.1	.1	.4	.3	.4	.4	.5	.4	.3	.4	.1	.1	.2	.8	1.3	1.6	1.3	.7	.9	-.1	.0	.1	.1	.3	.3	.3	.4
.4	.4	.4	.5	.4	.4	.3	.7	.1	.0	-.1	.2	.4	.4	.4	.5	.4	.5	1.0	.2	.2	.5	1.3	1.0	.9	.8	.7	.3	.1	.2	.2	.3	.4	.5	.5	.5
.3	.4	.4	.4	.4	.4	.3	.3	.2	.0	.1	.0	.2	.3	.3	.4	.3	.5	1.0	.3	.2	.8	.9	.5	.5	.4	.2	.0	.0	.3	.1	.3	.3	.3	.4	.4
.2	.3	.3	.4	.4	.5	.5	.5	.5	.4	.0	-.1	.1	.4	.3	.3	.3	.3	.2	-.2	.0	.7	.6	.4	.3	.2	.2	-.1	.2	.0	.0	.2	.2	.0	.0	.1
.3	.4	.5	.6	.6	.5	.5	.5	.5	.4	-.1	-.2	-.3	.3	.5	.5	.6	.5	.4	.1	.0	.5	.4	.4	.4	.3	.1	.0	-.2	.1	.0	.1	.1	.0	.2	.2
.2	.3	.2	.2	.5	.5	.5	.5	.5	.5	.5	.2	-.3	.2	.3	.5	.5	.5	.4	.8	.1	.4	.3	.4	.5	.5	.4	.5	.5	.4	.5	.4	.3	.4	.2	.3
.4	.5	.4	.4	.3	.4	.5	.5	.4	.5	.4	.9	.3	.3	.4	.4	.5	.5	.4	1.1	.6	.3	.5	.4	.5	.5	.4	.6	.5	.7	.7	.7	.6	.4	.4	.5
.5	.5	.5	.5	.5	.5	.5	.4	.4	.5	.5	.6	.2	.4	.5	.5	.4	.4	.3	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.5	.6	.6	.7	.5	.5	.3
.5	.6	.7	.6	.6	.6	.6	.5	.5	.5	.6	.7	.6	.5	.5	.5	.3	.3	.3	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.7	.7	.6	.6	.5	.3
.5	.6	.6	.7	.6	.7	.7	.6	.6	.5	.4	.4	.4	.4	.3	.1	.0	-.2	.0	.1	.3	.4	.4	.5	.4	.4	.5	.6	.6	.7	.7	.7	.7	.6	.6	.5
.2	.2	.2	.2	.1	.4	.4	.4	.4	.3	.1	.2	-.2	-.2	-.2	-.1	.1	.2	.2	.3	.3	.3	.2	.0	.1	.2	.1	.1	.4	.5	.3	.4	.3	.3	.2	.2
.0	.2	.1	.0	-.3	-.3	.0	-.1	.0	.1	-.2	-.4	-.4	-.2	-.1	-.2	-1.0	-2.0	-2.6	-2.5	-2.0	-1.8	-2.2	-2.4	-1.8	-1.6	-1.1	-.5	-1.1	-1.1	-1.6	-1.7	-1.6	-1.2	-.1	-.2
-1.0	-.9	-.5	-.2	-.6	-.6	-.8	-.4	.0	-.2	-.6	-.8	-.8	-.9	-1.0	-1.2	-1.5	-1.8	-2.2	-2.6	-3.2	-3.5	-3.4	-3.3	-3.3	-3.1	-3.1	-3.1	-3.2	-2.8	-2.9	-2.8	-2.7	-1.4	-1.3	-1.1

Figure 35. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: AMSUA-5 (700 hPa)

NOAA15, using all observations

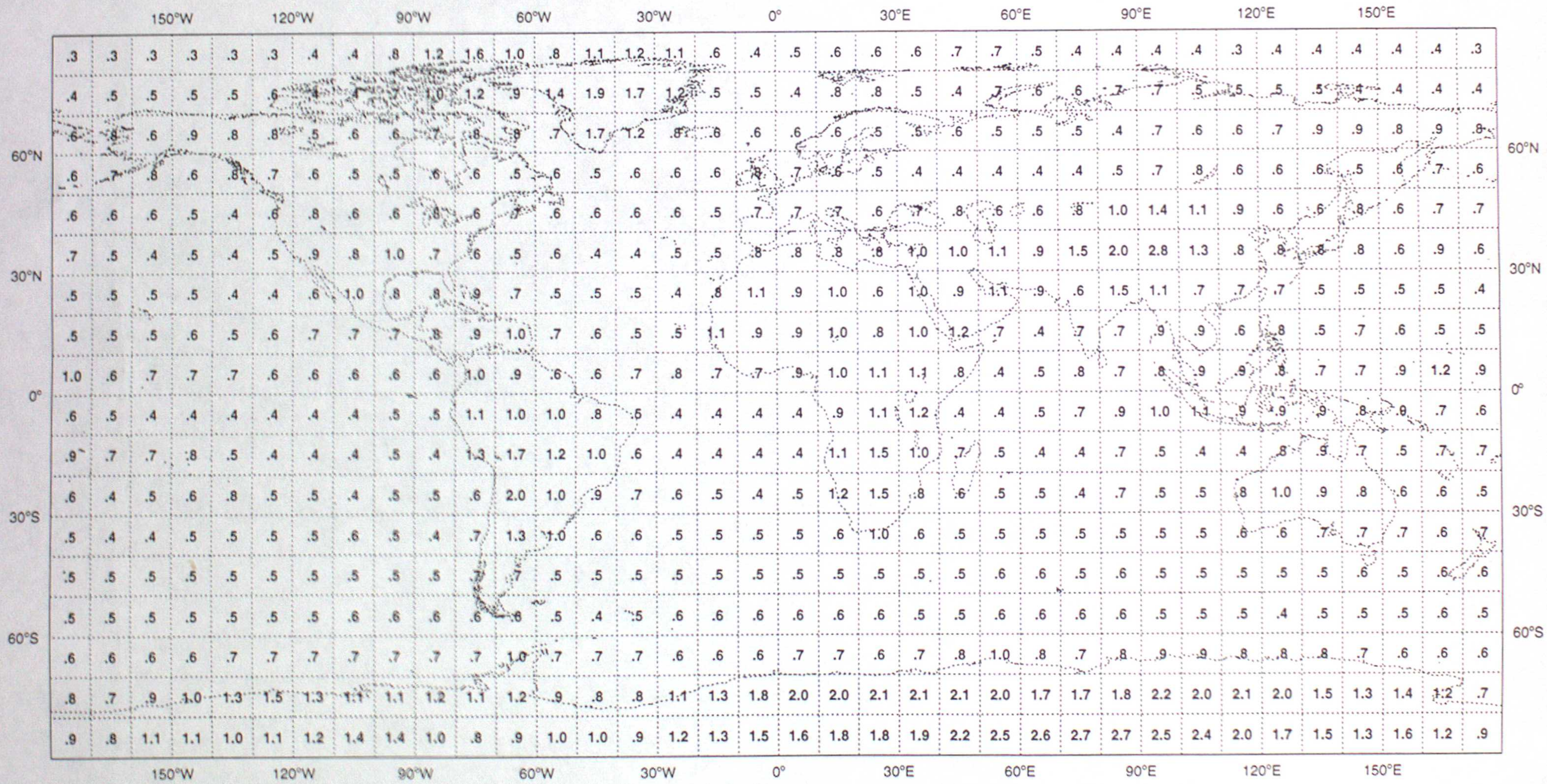
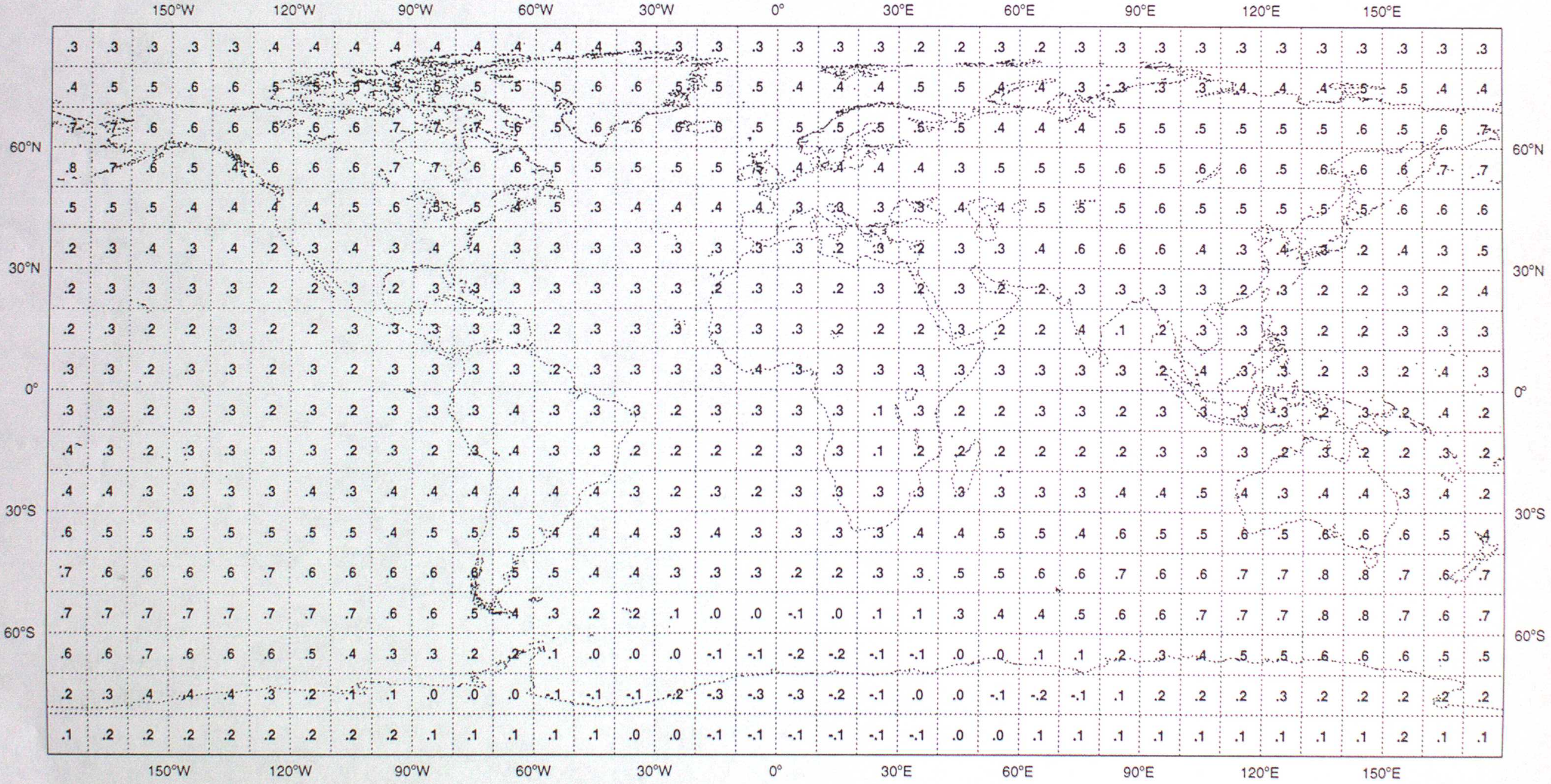

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .3 .3 .4 .4 .8 1.2 1.6 1.0 .8 1.1 1.2 1.1 .6 .4 .5 .6 .6 .6 .7 .7 .5 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .3
.4 .5 .5 .5 .5 .6 .4 .4 .7 1.0 1.2 .9 1.4 1.9 1.7 1.2 .5 .5 .4 .8 .8 .5 .4 .7 .6 .6 .7 .7 .5 .5 .5 .5 .4 .4 .4 .4
.6 .8 .6 .9 .8 .8 .5 .6 .6 .7 .8 .8 .7 1.7 1.2 .8 .6 .6 .6 .6 .5 .5 .6 .5 .5 .5 .4 .7 .6 .6 .7 .9 .9 .8 .9 .8
.6 .7 .8 .6 .8 .7 .6 .5 .5 .6 .6 .5 .6 .5 .6 .6 .6 .8 .7 .6 .5 .4 .4 .4 .4 .4 .5 .7 .8 .6 .6 .6 .5 .6 .7 .6
.6 .6 .6 .5 .4 .6 .8 .6 .6 .8 .6 .7 .6 .6 .6 .6 .5 .7 .7 .7 .6 .7 .8 .6 .6 .8 1.0 1.4 1.1 .9 .6 .6 .8 .6 .7 .7
.7 .5 .4 .5 .4 .5 .9 .8 1.0 .7 .6 .5 .6 .4 .4 .5 .5 .8 .8 .8 .8 1.0 1.0 1.1 .9 1.5 2.0 2.8 1.3 .8 .8 .8 .8 .6 .9 .6
.5 .5 .5 .5 .4 .4 .6 1.0 .8 .8 .9 .7 .5 .5 .5 .4 .8 1.1 .9 1.0 .6 1.0 .9 1.1 .9 .6 1.5 1.1 .7 .7 .7 .5 .5 .5 .5 .4
.5 .5 .5 .6 .5 .6 .7 .7 .7 .8 .9 1.0 .7 .6 .5 .5 1.1 .9 .9 1.0 .8 1.0 1.2 .7 .4 .7 .7 .9 .9 .6 .8 .5 .7 .6 .5 .5
1.0 .6 .7 .7 .7 .6 .6 .6 .6 .6 1.0 .9 .6 .6 .7 .8 .7 .7 .9 1.0 1.1 1.1 .8 .4 .5 .8 .7 .8 .9 .9 .8 .7 .7 .9 1.2 .9
.6 .5 .4 .4 .4 .4 .4 .4 .5 .5 1.1 1.0 1.0 .8 .5 .4 .4 .4 .4 .9 1.1 1.2 .4 .4 .5 .7 .9 1.0 1.1 .9 .9 .9 .8 .9 .7 .6
.9 .7 .7 .8 .5 .4 .4 .4 .5 .4 1.3 1.7 1.2 1.0 .6 .4 .4 .4 .4 1.1 1.5 1.0 .7 .5 .4 .4 .7 .5 .4 .4 .8 .9 .7 .5 .7 .7
.6 .4 .5 .6 .8 .5 .5 .4 .5 .5 .6 2.0 1.0 .9 .7 .6 .5 .4 .5 1.2 1.5 .8 .6 .5 .5 .4 .7 .5 .5 .8 1.0 .9 .8 .6 .6 .5
.5 .4 .4 .5 .5 .5 .5 .6 .5 .4 .7 1.3 1.0 .6 .6 .5 .5 .5 .5 .6 1.0 .6 .5 .5 .5 .5 .5 .5 .5 .6 .6 .7 .7 .7 .6 .7
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .7 .7 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .6 .5 .6 .5 .5 .5 .5 .5 .6 .5 .6 .6
.5 .5 .5 .5 .5 .5 .5 .6 .6 .6 .6 .6 .5 .4 .5 .6 .6 .6 .6 .6 .6 .5 .5 .6 .6 .6 .6 .5 .5 .5 .4 .5 .5 .5 .6 .5
.6 .6 .6 .6 .7 .7 .7 .7 .7 .7 .7 1.0 .7 .7 .7 .6 .6 .6 .7 .7 .6 .7 .8 1.0 .8 .7 .8 .9 .9 .8 .8 .8 .7 .6 .6 .6
.8 .7 .9 1.0 1.3 1.5 1.3 1.1 1.1 1.2 1.1 1.2 .9 .8 .8 1.1 1.3 1.8 2.0 2.0 2.1 2.1 2.1 2.0 1.7 1.7 1.8 2.2 2.0 2.1 2.0 1.5 1.3 1.4 1.2 .7
.9 .8 1.1 1.1 1.0 1.1 1.2 1.4 1.4 1.0 .8 .9 1.0 1.0 .9 1.2 1.3 1.5 1.6 1.8 1.8 1.9 2.2 2.5 2.6 2.7 2.7 2.5 2.4 2.0 1.7 1.5 1.3 1.6 1.2 .9

Figure 36. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations



.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.2	.2	.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.5	.5	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.5	.5	.5	.4	.4	.4	.5	.5	.4	.4	.3	.3	.3	.3	.4	.4	.4	.5	.5	.4	.4
.7	.7	.6	.6	.6	.6	.6	.6	.7	.7	.7	.6	.5	.6	.6	.6	.6	.5	.5	.5	.5	.5	.5	.4	.4	.4	.5	.5	.5	.5	.5	.5	.6	.5	.6	.7
.8	.7	.6	.5	.4	.6	.6	.6	.7	.7	.6	.6	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.3	.5	.5	.5	.6	.5	.6	.6	.5	.6	.6	.6	.7	.7
.5	.5	.5	.4	.4	.4	.4	.5	.6	.5	.5	.4	.5	.3	.4	.4	.4	.4	.3	.3	.3	.3	.4	.4	.5	.5	.5	.6	.5	.5	.5	.5	.5	.6	.6	.6
.2	.3	.4	.3	.4	.2	.3	.4	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.2	.3	.2	.3	.3	.4	.6	.6	.6	.4	.3	.4	.3	.2	.4	.3	.5
.2	.3	.3	.3	.3	.2	.2	.3	.2	.3	.3	.3	.3	.3	.3	.3	.2	.3	.3	.2	.3	.2	.3	.2	.2	.3	.3	.3	.3	.2	.3	.2	.2	.3	.2	.4
.2	.3	.2	.2	.3	.2	.2	.3	.3	.3	.3	.3	.2	.3	.3	.3	.3	.3	.3	.2	.2	.2	.3	.2	.2	.4	.1	.2	.3	.3	.3	.2	.2	.3	.3	.3
.3	.3	.2	.3	.3	.2	.3	.2	.3	.3	.3	.3	.2	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.4	.3	.3	.2	.3	.2	.4	.3
.3	.3	.2	.3	.3	.2	.3	.2	.3	.3	.3	.4	.3	.3	.3	.2	.3	.3	.3	.3	.1	.3	.2	.2	.3	.3	.2	.3	.3	.3	.3	.2	.3	.2	.4	.2
.4	.3	.2	.3	.3	.3	.3	.2	.3	.2	.3	.4	.3	.3	.2	.2	.2	.2	.3	.3	.1	.2	.2	.2	.2	.2	.2	.3	.3	.3	.2	.3	.2	.2	.3	.2
.4	.4	.3	.3	.3	.3	.4	.3	.4	.4	.4	.4	.4	.4	.3	.2	.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.5	.4	.3	.4	.4	.3	.4	.2
.6	.5	.5	.5	.5	.5	.5	.5	.4	.5	.5	.5	.4	.4	.4	.3	.4	.3	.3	.3	.3	.4	.4	.5	.5	.4	.6	.5	.5	.6	.5	.6	.6	.6	.5	.4
.7	.6	.6	.6	.6	.7	.6	.6	.6	.6	.6	.5	.5	.4	.4	.3	.3	.3	.2	.2	.3	.3	.5	.5	.6	.6	.7	.6	.6	.7	.7	.8	.8	.7	.6	.7
.7	.7	.7	.7	.7	.7	.7	.7	.6	.6	.5	.4	.3	.2	.2	.1	.0	.0	-.1	.0	.1	.1	.3	.4	.4	.5	.6	.6	.7	.7	.7	.8	.8	.7	.6	.7
.6	.6	.7	.6	.6	.6	.5	.4	.3	.3	.2	.2	.1	.0	.0	.0	-.1	-.1	-.2	-.2	-.1	-.1	.0	.0	.1	.1	.2	.3	.4	.5	.5	.6	.6	.6	.5	.5
.2	.3	.4	.4	.4	.3	.2	.1	.1	.0	.0	.0	-.1	-.1	-.1	-.2	-.3	-.3	-.3	-.2	-.1	.0	.0	-.1	-.2	-.1	.1	.2	.2	.2	.3	.2	.2	.2	.2	.2
.1	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.0	.0	-.1	-.1	-.1	-.1	-.1	-.1	.0	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1

Figure 37. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations

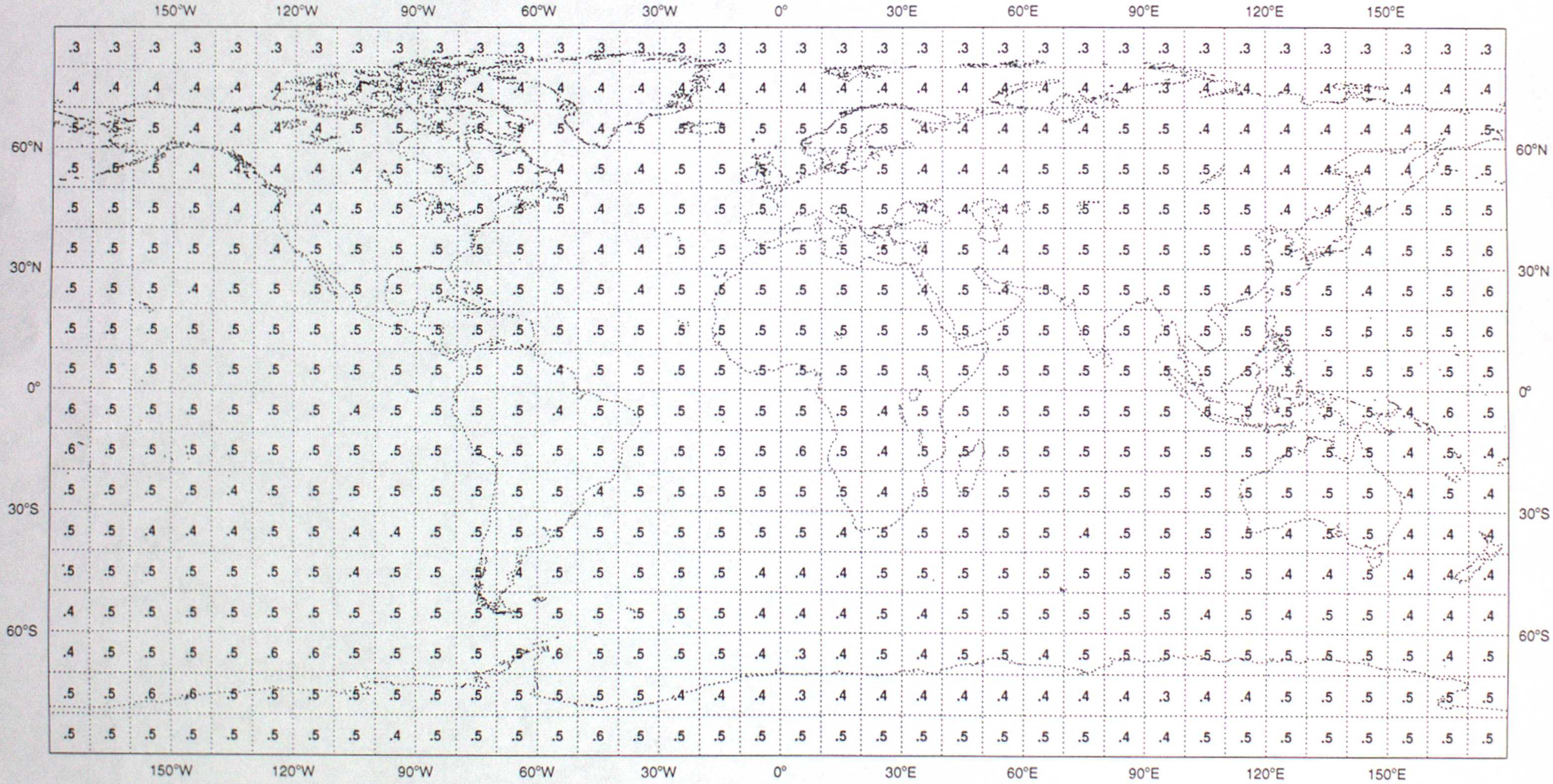

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4
.5 .5 .5 .4 .4 .4 .4 .5 .5 .5 .6 .4 .5 .4 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .5 .5 .4 .4 .4 .4 .4 .4 .4 .5
.5 .5 .5 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .5 .4 .5 .5 .5 .5 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .5 .5
.5 .5 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .5 .4 .4 .4 .5 .5 .5
.5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .6
.5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .5 .5 .5 .5 .4 .5 .5 .4 .5 .5 .6
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.6 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .4 .6 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4
.5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4
.5 .5 .4 .4 .4 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .4 .5 .5 .4 .4 .4
.5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .4 .5 .5 .5 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .4 .4 .4
.4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .5 .4 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .5 .4 .4 .4
.4 .5 .5 .5 .5 .6 .6 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .4 .3 .4 .5 .4 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5
.5 .5 .6 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5

Figure 38. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: AMSUA-9 (100 hPa)

NOAA15, using all observations

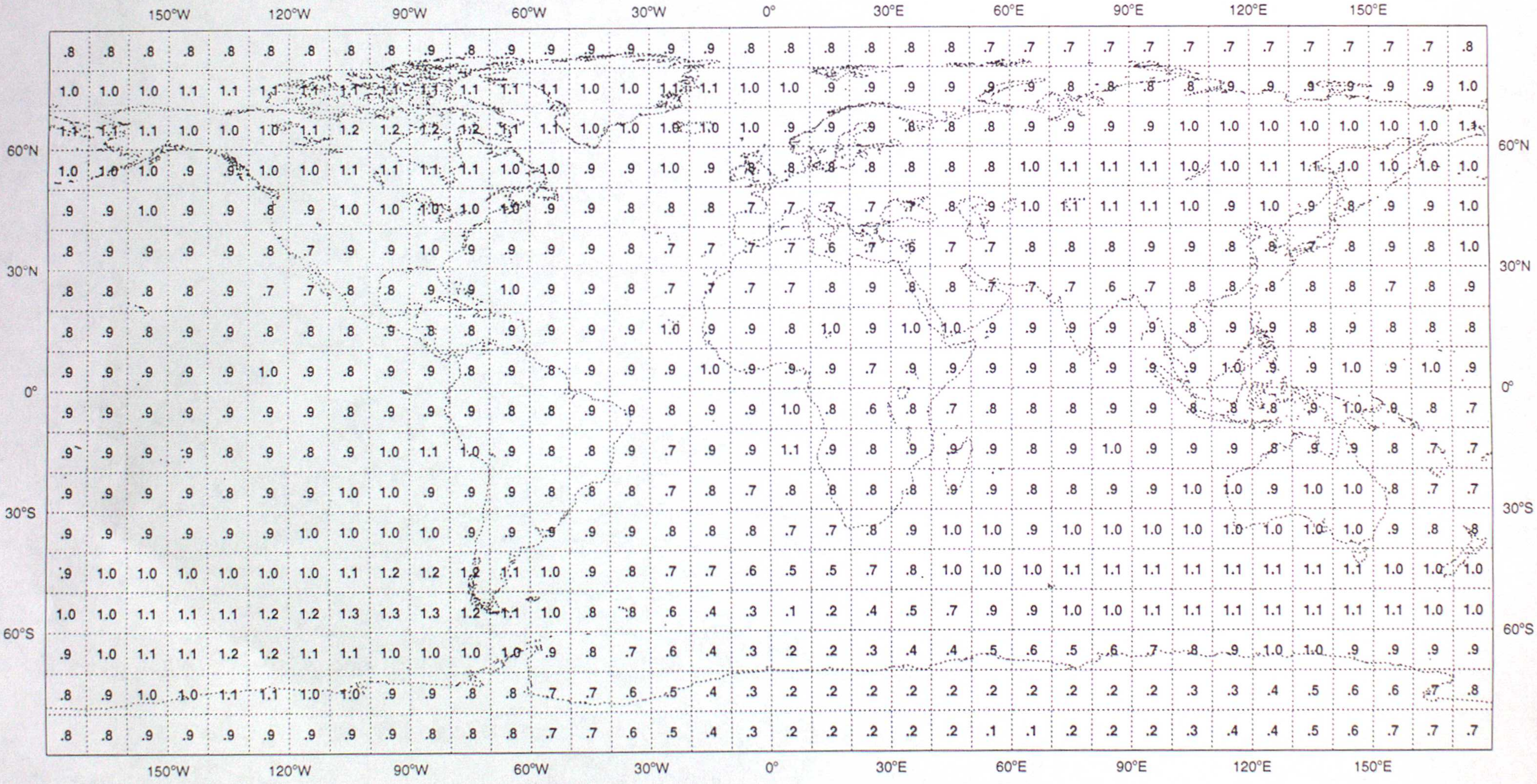

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
.8 .8 .8 .8 .8 .8 .8 .8 .8 .9 .8 .9 .9 .9 .9 .9 .9 .8 .8 .8 .8 .8 .8 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .8
1.0 1.0 1.0 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.0 1.0 1.1 1.1 1.0 1.0 .9 .9 .9 .9 .9 .9 .8 .8 .8 .8 .9 .9 .9 .9 .9 .9 1.0
1.1 1.1 1.1 1.0 1.0 1.0 1.1 1.2 1.2 1.2 1.2 1.1 1.1 1.0 1.0 1.0 1.0 1.0 .9 .9 .9 .8 .8 .8 .9 .9 .9 .9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.1
1.0 1.0 1.0 .9 .9 1.0 1.0 1.1 1.1 1.1 1.1 1.0 1.0 .9 .9 1.0 .9 .8 .8 .8 .8 .8 .8 .8 1.0 1.1 1.1 1.1 1.0 1.0 1.1 1.1 1.0 1.0 1.0 1.0
.9 .9 1.0 .9 .9 .8 .9 1.0 1.0 1.0 1.0 1.0 .9 .9 .8 .8 .8 .7 .7 .7 .7 .7 .8 .9 1.0 1.1 1.1 1.1 1.0 .9 1.0 .9 .8 .9 .9 1.0
.8 .9 .9 .9 .9 .8 .7 .9 .9 1.0 .9 .9 .9 .9 .8 .7 .7 .7 .7 .6 .7 .6 .7 .7 .8 .8 .8 .9 .9 .8 .8 .7 .8 .9 .8 1.0
.8 .8 .8 .8 .9 .7 .7 .8 .8 .9 .9 1.0 .9 .9 .8 .7 .7 .7 .7 .8 .9 .8 .8 .7 .7 .7 .6 .7 .8 .8 .8 .8 .8 .7 .8 .9
.8 .9 .8 .9 .9 .8 .8 .8 .9 .8 .8 .9 .9 .9 .9 1.0 .9 .9 .8 1.0 .9 1.0 1.0 .9 .9 .9 .9 .9 .8 .9 .9 .8 .9 .8 .8 .8
.9 .9 .9 .9 .9 1.0 .9 .8 .9 .9 .8 .9 .8 .9 .9 .9 1.0 .9 .9 .9 .7 .9 .9 .9 .9 .8 .9 .9 .9 1.0 .9 .9 1.0 .9 1.0 .9
.9 .9 .9 .9 .9 .9 .9 .8 .9 .9 .9 .8 .8 .9 .9 .8 .9 .9 1.0 .8 .6 .8 .7 .8 .8 .8 .9 .9 .8 .8 .8 .9 1.0 .9 .8 .7
.9 .9 .9 .9 .8 .9 .8 .9 1.0 1.1 1.0 .9 .8 .8 .9 .7 .9 .9 1.1 .9 .8 .9 .9 .9 .8 .9 1.0 .9 .9 .9 .8 .9 .9 .8 .7 .7
.9 .9 .9 .9 .8 .9 .9 1.0 1.0 .9 .9 .9 .8 .8 .8 .7 .8 .7 .8 .8 .8 .8 .9 .9 .8 .8 .9 .9 1.0 1.0 .9 1.0 1.0 .8 .7 .7
.9 .9 .9 .9 .9 .9 1.0 1.0 1.0 1.0 .9 .9 .9 .9 .9 .8 .8 .8 .7 .7 .8 .9 1.0 1.0 .9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 .9 .8 .8
.9 1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.2 1.2 1.2 1.1 1.0 .9 .8 .7 .7 .6 .5 .5 .7 .8 1.0 1.0 1.0 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.0 1.0 1.0
1.0 1.0 1.1 1.1 1.1 1.2 1.2 1.3 1.3 1.3 1.2 1.1 1.0 .8 .8 .6 .4 .3 .1 .2 .4 .5 .7 .9 .9 1.0 1.0 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.0 1.0
.9 1.0 1.1 1.1 1.2 1.2 1.1 1.1 1.0 1.0 1.0 1.0 .9 .8 .7 .6 .4 .3 .2 .2 .3 .4 .4 .5 .6 .5 .6 .7 .8 .9 1.0 1.0 .9 .9 .9 .9
.8 .9 1.0 1.0 1.1 1.1 1.0 1.0 .9 .9 .8 .8 .7 .7 .6 .5 .4 .3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .3 .3 .4 .5 .6 .6 .7 .8
.8 .8 .9 .9 .9 .9 .9 .9 .9 .8 .8 .8 .7 .7 .6 .5 .4 .3 .2 .2 .2 .2 .2 .1 .1 .2 .2 .2 .3 .4 .4 .5 .6 .7 .7 .7

Figure 39. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations

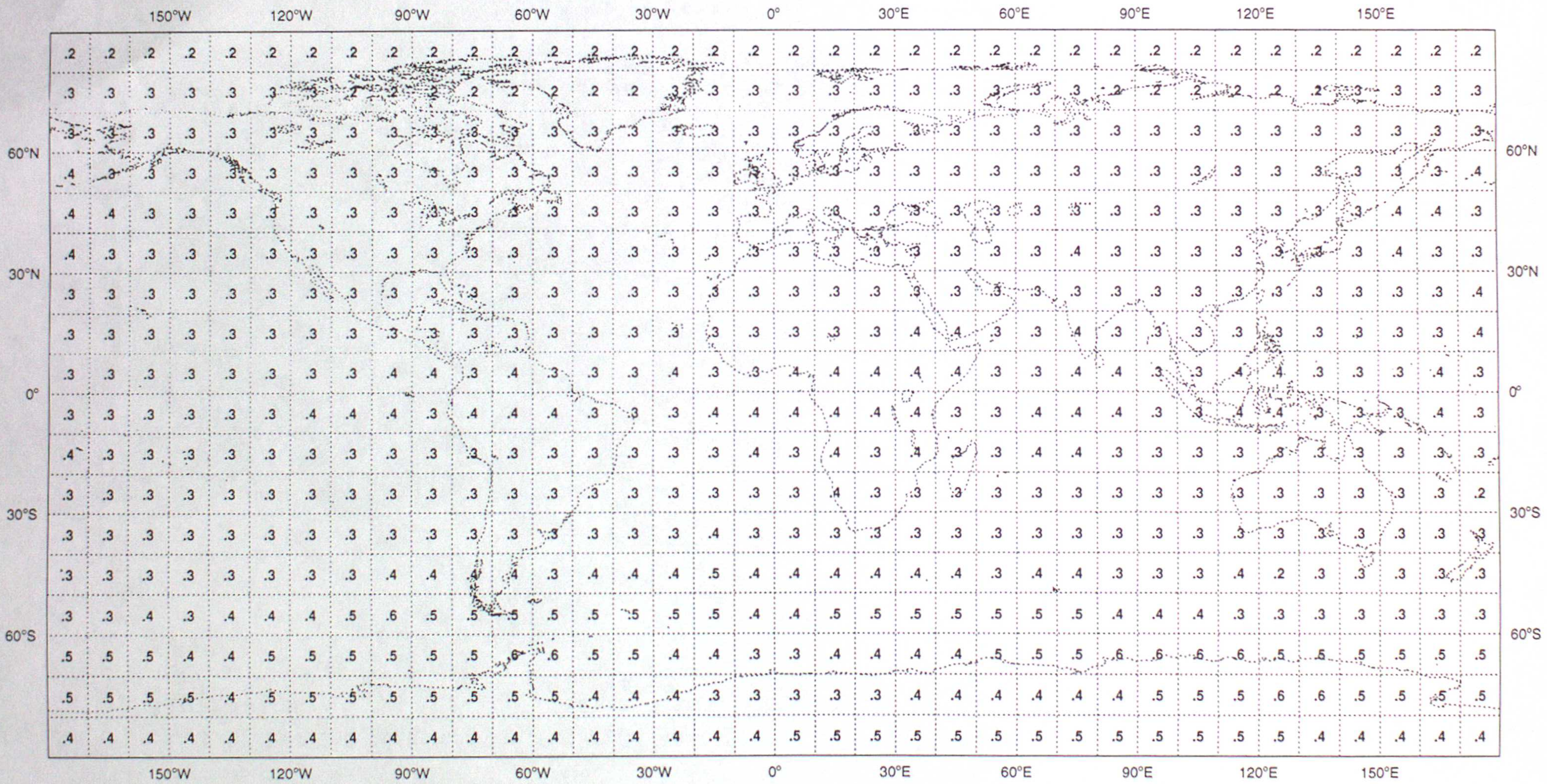
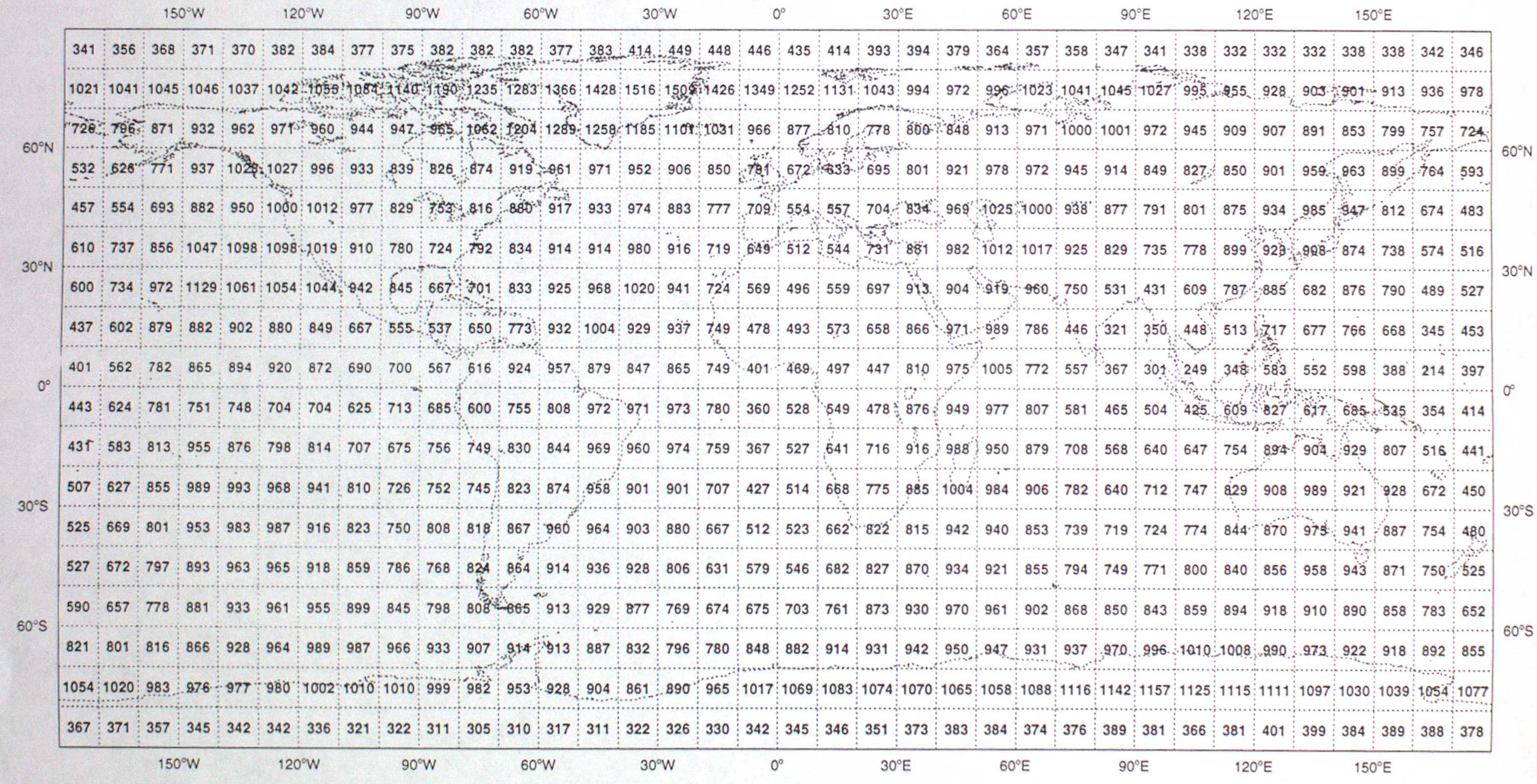

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2
.3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .2 .2 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4
.4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3
.4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4
.3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .4 .3 .3 .3 .4 .3 .3 .4 .4 .4 .4 .4 .3 .3 .4 .4 .3 .3 .4 .4 .3 .3 .3 .4 .3
.3 .3 .3 .3 .3 .3 .4 .4 .4 .3 .4 .4 .4 .3 .3 .3 .4 .4 .4 .4 .4 .4 .3 .3 .4 .4 .4 .3 .3 .4 .4 .3 .3 .3 .4 .3
.4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .4 .3 .4 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .3 .4 .4 .3 .3 .3 .4 .2 .3 .3 .3 .3 .3
.3 .3 .4 .3 .4 .4 .4 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3
.5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .6 .6 .5 .5 .4 .4 .3 .3 .4 .4 .4 .4 .5 .5 .5 .6 .6 .6 .6 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .5 .5 .5 .6 .6 .5 .5 .5 .5
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4

Figure 40. ATOVS mean daily count. OCTOBER 2001
NOAA16, using all observations
Global average number of observations in 24 hours = 505526

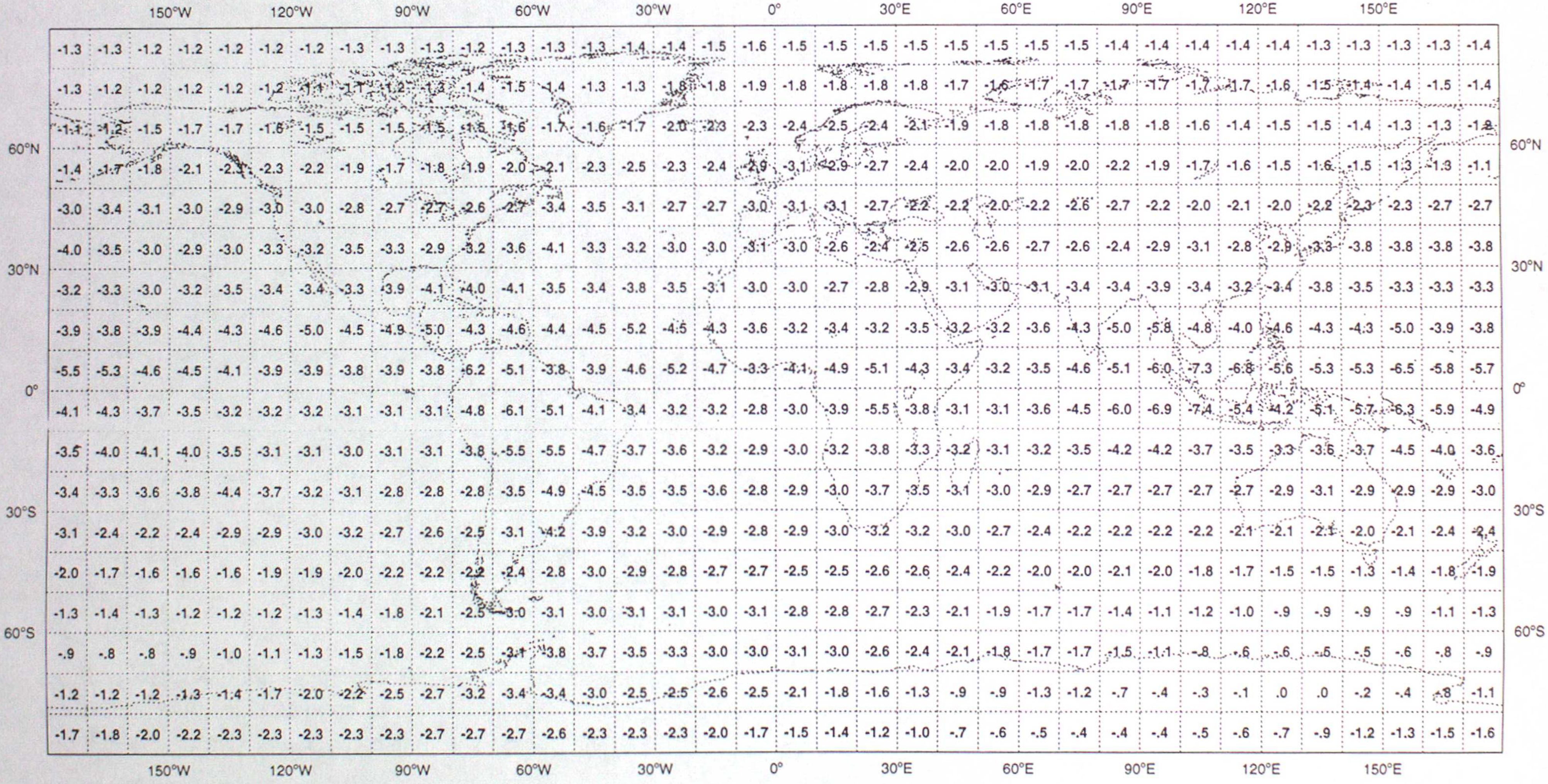


341	356	368	371	370	382	384	377	375	382	382	382	377	383	414	449	448	446	435	414	393	394	379	364	357	358	347	341	338	332	332	332	338	338	342	346
1021	1041	1045	1046	1037	1042	1055	1084	1140	1190	1235	1283	1366	1428	1516	1509	1426	1349	1252	1131	1043	994	972	996	1023	1041	1045	1027	995	955	928	903	901	913	936	978
728	796	871	932	962	971	960	944	947	965	1062	1204	1289	1258	1185	1101	1031	966	877	810	778	800	848	913	971	1000	1001	972	945	909	907	891	853	799	757	724
532	626	771	937	1028	1027	996	933	839	826	874	919	961	971	952	906	850	781	672	633	695	801	921	978	972	945	914	849	827	850	901	959	963	899	764	593
457	554	693	882	950	1000	1012	977	829	753	816	880	917	933	974	883	777	709	554	557	704	834	969	1025	1000	938	877	791	801	875	934	985	947	812	674	483
610	737	856	1047	1098	1098	1019	910	780	724	792	834	914	914	980	916	719	649	512	544	731	881	982	1012	1017	925	829	735	778	899	928	908	874	738	574	516
600	734	972	1129	1061	1054	1044	942	845	667	701	833	925	968	1020	941	724	569	496	559	697	913	904	919	960	750	531	431	609	787	885	682	876	790	489	527
437	602	879	882	902	880	849	667	555	537	650	773	932	1004	929	937	749	478	493	573	658	866	971	989	786	446	321	350	448	513	717	677	766	668	345	453
401	562	782	865	894	920	872	690	700	567	616	924	957	879	847	865	749	401	469	497	447	810	975	1005	772	557	367	301	249	348	583	552	598	388	214	397
443	624	781	751	748	704	704	625	713	685	600	755	808	972	971	973	780	360	528	549	478	876	949	977	807	581	465	504	425	609	827	617	685	535	354	414
431	583	813	955	876	798	814	707	675	756	749	830	844	969	960	974	759	367	527	641	716	916	988	950	879	708	568	640	647	754	894	904	929	807	516	441
507	627	855	989	993	968	941	810	726	752	745	823	874	958	901	901	707	427	514	668	775	885	1004	984	906	782	640	712	747	829	908	989	921	928	672	450
525	669	801	953	983	987	916	823	750	808	818	867	960	964	903	880	667	512	523	662	822	815	942	940	853	739	719	724	774	844	870	975	941	887	754	480
527	672	797	893	963	965	918	859	786	768	824	864	914	936	928	806	631	579	546	682	827	870	934	921	855	794	749	771	800	840	856	958	943	871	750	525
590	657	778	881	933	961	955	899	845	798	808	865	913	929	877	769	674	675	703	761	873	930	970	961	902	868	850	843	859	894	918	910	890	858	783	652
821	801	816	866	928	964	989	987	966	933	907	914	913	887	832	796	780	848	882	914	931	942	950	947	931	937	970	996	1010	1008	990	973	922	918	892	855
1054	1020	983	976	977	980	1002	1010	1010	999	982	953	928	904	861	890	965	1017	1069	1083	1074	1070	1065	1058	1088	1116	1142	1157	1125	1115	1111	1097	1030	1039	1054	1077
367	371	357	345	342	342	336	321	322	311	305	310	317	311	322	326	330	342	345	346	351	373	383	384	374	376	389	381	366	381	401	399	384	389	388	378

Figure 41. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: HIRS8 (Surface)

NOAA16, using all observations

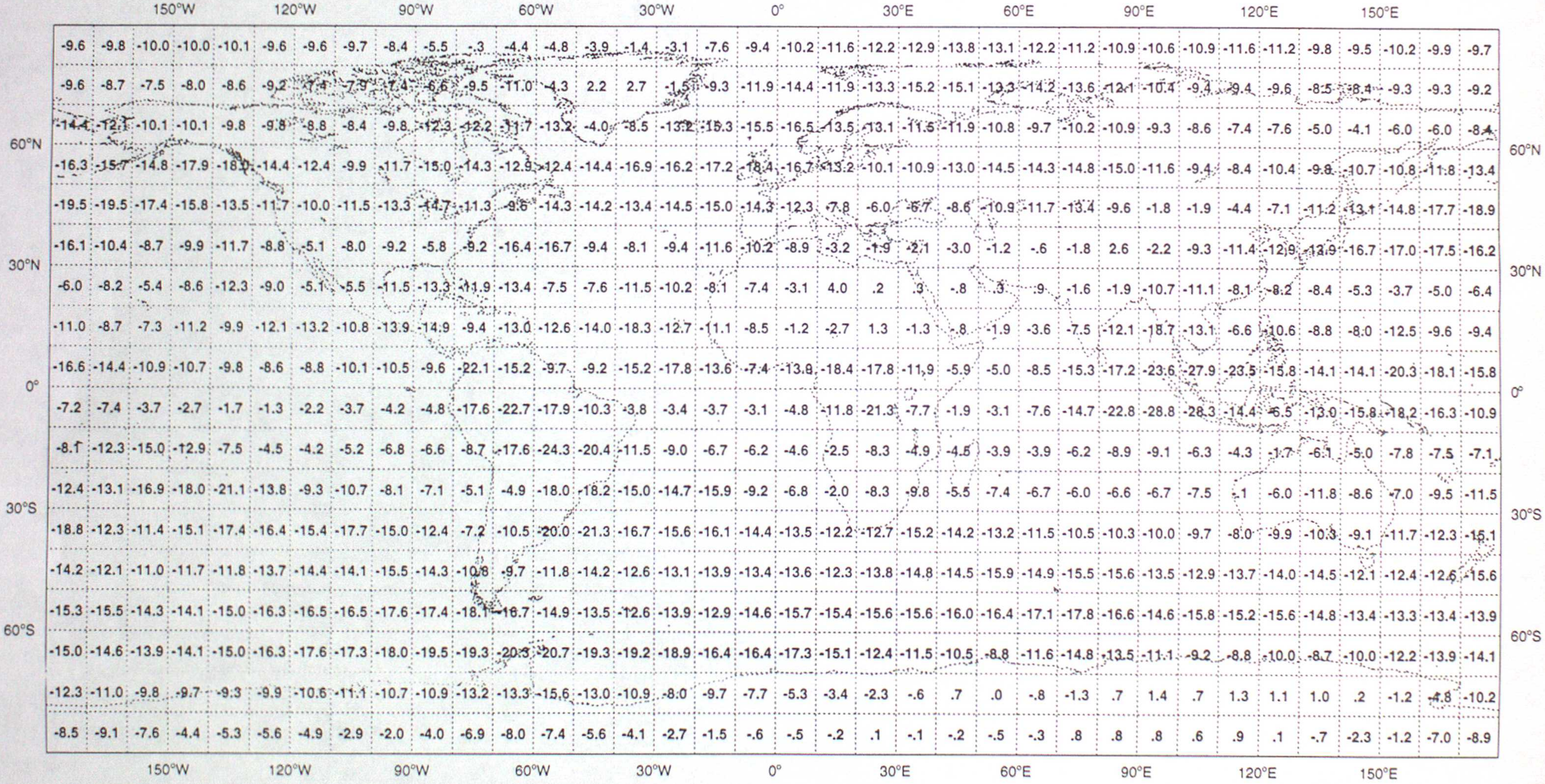


-1.3	-1.3	-1.2	-1.2	-1.2	-1.2	-1.2	-1.3	-1.3	-1.3	-1.2	-1.3	-1.3	-1.3	-1.4	-1.4	-1.5	-1.6	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.4	-1.4	-1.4	-1.4	-1.4	-1.3	-1.3	-1.3	-1.3	-1.4
-1.3	-1.2	-1.2	-1.2	-1.2	-1.2	-1.1	-1.1	-1.2	-1.3	-1.4	-1.5	-1.4	-1.3	-1.3	-1.8	-1.8	-1.9	-1.8	-1.8	-1.8	-1.8	-1.7	-1.6	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.6	-1.5	-1.4	-1.4	-1.5	-1.4
-1.1	-1.2	-1.5	-1.7	-1.7	-1.6	-1.5	-1.5	-1.5	-1.5	-1.5	-1.6	-1.7	-1.6	-1.7	-2.0	-2.3	-2.3	-2.4	-2.5	-2.4	-2.1	-1.9	-1.8	-1.8	-1.8	-1.8	-1.8	-1.6	-1.4	-1.5	-1.5	-1.4	-1.3	-1.3	-1.2
-1.4	-1.7	-1.8	-2.1	-2.3	-2.3	-2.2	-1.9	-1.7	-1.8	-1.9	-2.0	-2.1	-2.3	-2.5	-2.3	-2.4	-2.9	-3.1	-2.9	-2.7	-2.4	-2.0	-2.0	-1.9	-2.0	-2.2	-1.9	-1.7	-1.6	-1.5	-1.6	-1.5	-1.3	-1.3	-1.1
-3.0	-3.4	-3.1	-3.0	-2.9	-3.0	-3.0	-2.8	-2.7	-2.7	-2.6	-2.7	-3.4	-3.5	-3.1	-2.7	-2.7	-3.0	-3.1	-3.1	-2.7	-2.2	-2.2	-2.0	-2.2	-2.6	-2.7	-2.2	-2.0	-2.1	-2.0	-2.2	-2.3	-2.3	-2.7	-2.7
-4.0	-3.5	-3.0	-2.9	-3.0	-3.3	-3.2	-3.5	-3.3	-2.9	-3.2	-3.6	-4.1	-3.3	-3.2	-3.0	-3.0	-3.1	-3.0	-2.6	-2.4	-2.5	-2.6	-2.6	-2.7	-2.6	-2.4	-2.9	-3.1	-2.8	-2.9	-3.3	-3.8	-3.8	-3.8	-3.8
-3.2	-3.3	-3.0	-3.2	-3.5	-3.4	-3.4	-3.3	-3.9	-4.1	-4.0	-4.1	-3.5	-3.4	-3.8	-3.5	-3.1	-3.0	-3.0	-2.7	-2.8	-2.9	-3.1	-3.0	-3.1	-3.4	-3.4	-3.9	-3.4	-3.2	-3.4	-3.8	-3.5	-3.3	-3.3	-3.3
-3.9	-3.8	-3.9	-4.4	-4.3	-4.6	-5.0	-4.5	-4.9	-5.0	-4.3	-4.6	-4.4	-4.5	-5.2	-4.5	-4.3	-3.6	-3.2	-3.4	-3.2	-3.5	-3.2	-3.2	-3.6	-4.3	-5.0	-5.8	-4.8	-4.0	-4.6	-4.3	-4.3	-5.0	-3.9	-3.8
-5.5	-5.3	-4.6	-4.5	-4.1	-3.9	-3.9	-3.8	-3.9	-3.8	-6.2	-5.1	-3.8	-3.9	-4.6	-5.2	-4.7	-3.3	-4.1	-4.9	-5.1	-4.3	-3.4	-3.2	-3.5	-4.6	-5.1	-6.0	-7.3	-6.8	-5.6	-5.3	-5.3	-6.5	-5.8	-5.7
-4.1	-4.3	-3.7	-3.5	-3.2	-3.2	-3.2	-3.1	-3.1	-3.1	-4.8	-6.1	-5.1	-4.1	-3.4	-3.2	-3.2	-2.8	-3.0	-3.9	-5.5	-3.8	-3.1	-3.1	-3.6	-4.5	-6.0	-6.9	-7.4	-5.4	-4.2	-5.1	-5.7	-6.3	-5.9	-4.9
-3.5	-4.0	-4.1	-4.0	-3.5	-3.1	-3.1	-3.0	-3.1	-3.1	-3.8	-5.5	-5.5	-4.7	-3.7	-3.6	-3.2	-2.9	-3.0	-3.2	-3.8	-3.3	-3.2	-3.1	-3.2	-3.5	-4.2	-4.2	-3.7	-3.5	-3.3	-3.6	-3.7	-4.5	-4.0	-3.6
-3.4	-3.3	-3.6	-3.8	-4.4	-3.7	-3.2	-3.1	-2.8	-2.8	-2.8	-3.5	-4.9	-4.5	-3.5	-3.5	-3.6	-2.8	-2.9	-3.0	-3.7	-3.5	-3.1	-3.0	-2.9	-2.7	-2.7	-2.7	-2.7	-2.7	-2.9	-3.1	-2.9	-2.9	-2.9	-3.0
-3.1	-2.4	-2.2	-2.4	-2.9	-2.9	-3.0	-3.2	-2.7	-2.6	-2.5	-3.1	-4.2	-3.9	-3.2	-3.0	-2.9	-2.8	-2.9	-3.0	-3.2	-3.2	-3.0	-2.7	-2.4	-2.2	-2.2	-2.2	-2.2	-2.1	-2.1	-2.1	-2.0	-2.1	-2.4	-2.4
-2.0	-1.7	-1.6	-1.6	-1.6	-1.9	-1.9	-2.0	-2.2	-2.2	-2.2	-2.4	-2.8	-3.0	-2.9	-2.8	-2.7	-2.7	-2.5	-2.5	-2.6	-2.6	-2.4	-2.2	-2.0	-2.0	-2.1	-2.0	-1.8	-1.7	-1.5	-1.5	-1.3	-1.4	-1.8	-1.9
-1.3	-1.4	-1.3	-1.2	-1.2	-1.2	-1.3	-1.4	-1.8	-2.1	-2.5	-3.0	-3.1	-3.0	-3.1	-3.1	-3.0	-3.1	-2.8	-2.8	-2.7	-2.3	-2.1	-1.9	-1.7	-1.7	-1.4	-1.1	-1.2	-1.0	-.9	-.9	-.9	-.9	-1.1	-1.3
-.9	-.8	-.8	-.9	-1.0	-1.1	-1.3	-1.5	-1.8	-2.2	-2.5	-3.1	-3.8	-3.7	-3.5	-3.3	-3.0	-3.0	-3.1	-3.0	-2.6	-2.4	-2.1	-1.8	-1.7	-1.7	-1.5	-1.1	-.8	-.6	-.6	-.5	-.5	-.6	-.8	-.9
-1.2	-1.2	-1.2	-1.3	-1.4	-1.7	-2.0	-2.2	-2.5	-2.7	-3.2	-3.4	-3.4	-3.0	-2.5	-2.5	-2.6	-2.5	-2.1	-1.8	-1.6	-1.3	-.9	-.9	-1.3	-1.2	-.7	-.4	-.3	-.1	.0	.0	-.2	-.4	-.8	-1.1
-1.7	-1.8	-2.0	-2.2	-2.3	-2.3	-2.3	-2.3	-2.3	-2.7	-2.7	-2.7	-2.6	-2.3	-2.3	-2.3	-2.0	-1.7	-1.5	-1.4	-1.2	-1.0	-.7	-.6	-.5	-.4	-.4	-.4	-.5	-.6	-.7	-.9	-1.2	-1.3	-1.5	-1.6

Figure 42. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001

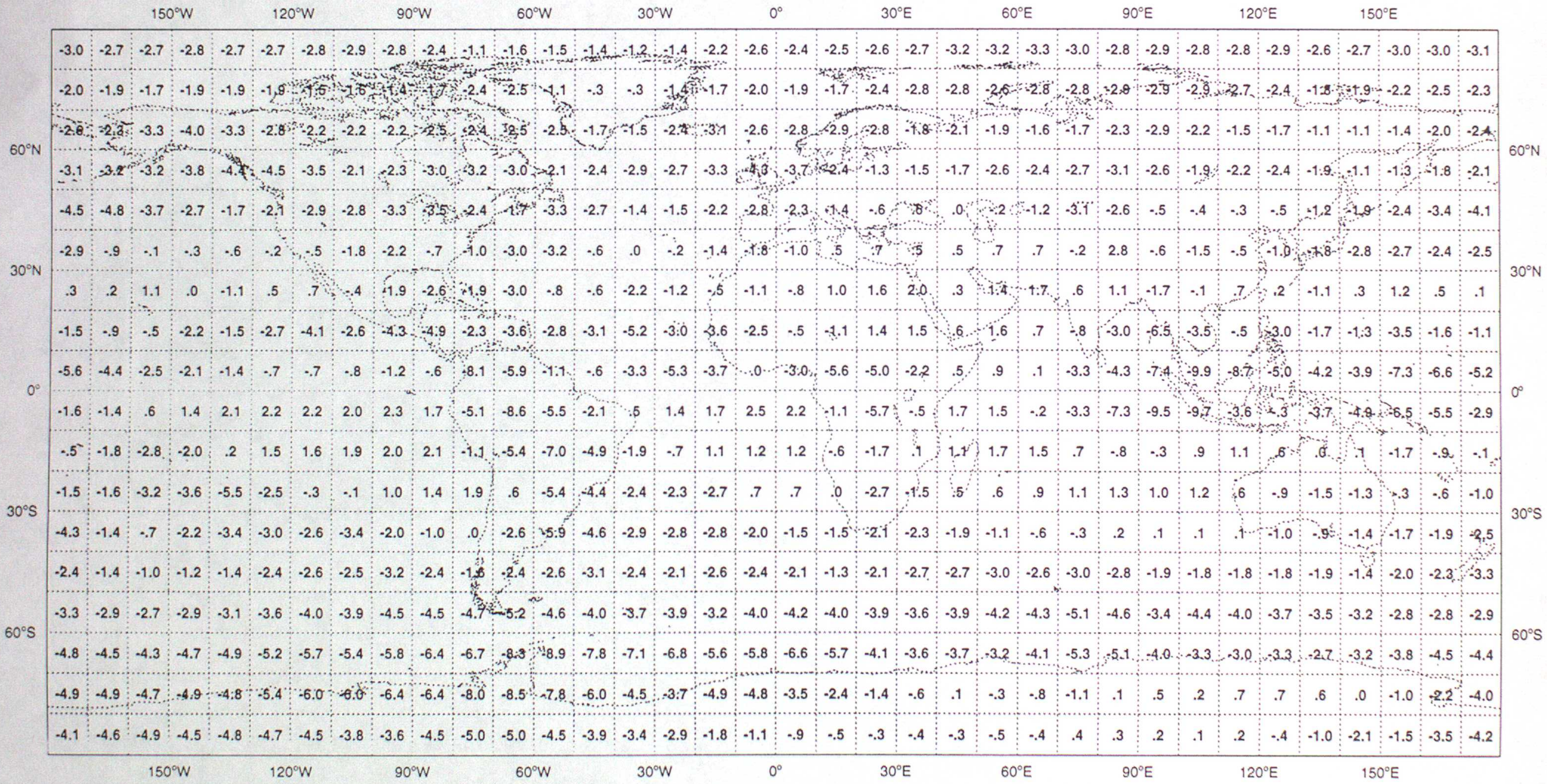
Channel: HIRS8 (Surface)

NOAA16, using all observations



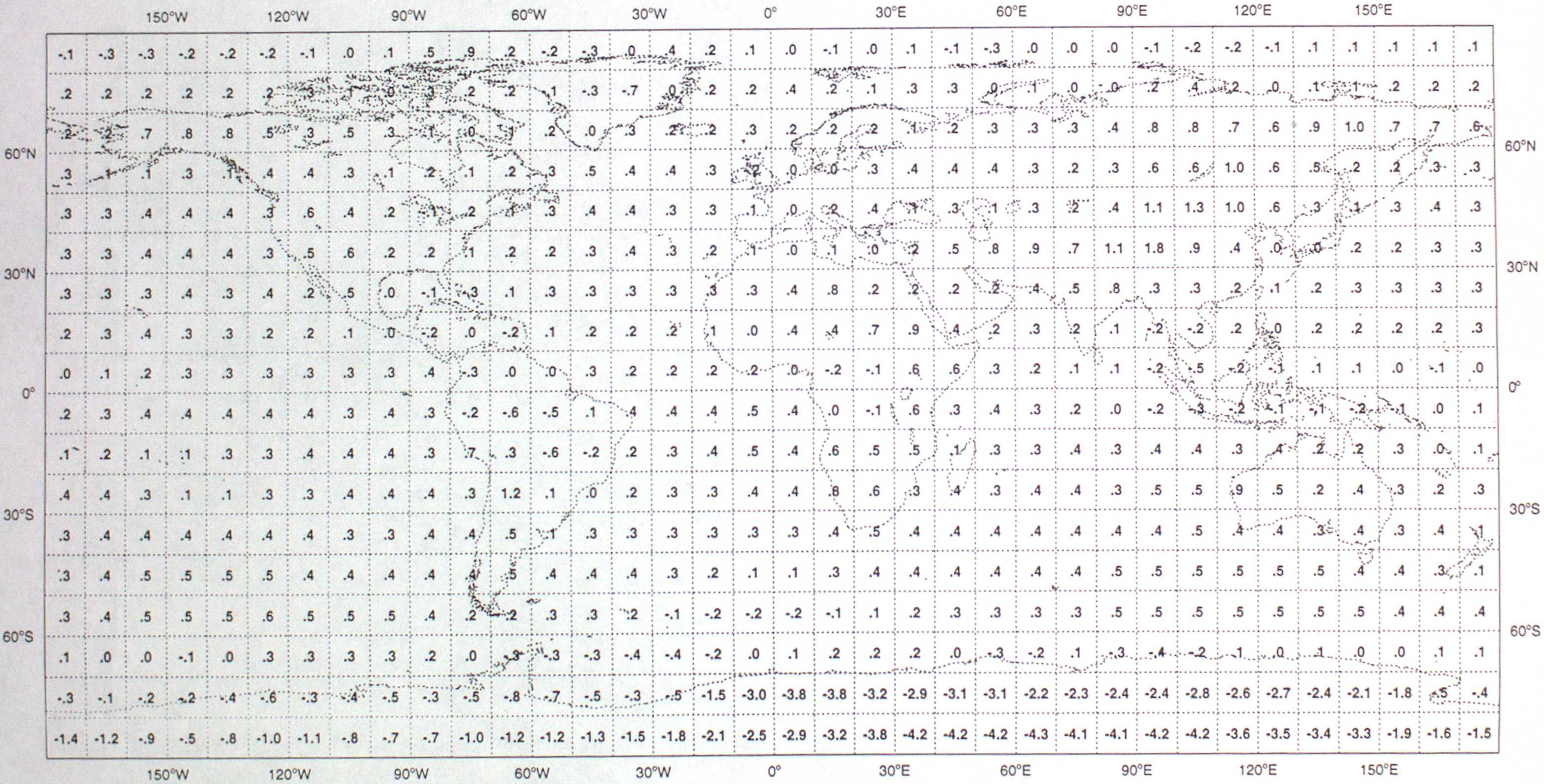
-9.6	-9.8	-10.0	-10.0	-10.1	-9.6	-9.6	-9.7	-8.4	-5.5	-.3	-4.4	-4.8	-3.9	-1.4	-3.1	-7.6	-9.4	-10.2	-11.6	-12.2	-12.9	-13.8	-13.1	-12.2	-11.2	-10.9	-10.6	-10.9	-11.6	-11.2	-9.8	-9.5	-10.2	-9.9	-9.7
-9.6	-8.7	-7.5	-8.0	-8.6	-9.2	-7.4	-7.9	-7.4	-6.6	-9.5	-11.0	-4.3	2.2	2.7	-1.5	-9.3	-11.9	-14.4	-11.9	-13.3	-15.2	-15.1	-13.3	-14.2	-13.6	-12.1	-10.4	-9.4	-9.4	-9.6	-8.5	-8.4	-9.3	-9.3	-9.2
-14.4	-12.1	-10.1	-10.1	-9.8	-9.8	-8.8	-8.4	-9.8	-12.3	-12.2	-11.7	-13.2	-4.0	-8.5	-13.2	-15.3	-15.5	-16.5	-13.5	-13.1	-11.5	-11.9	-10.8	-9.7	-10.2	-10.9	-9.3	-8.6	-7.4	-7.6	-5.0	-4.1	-6.0	-6.0	-8.4
-16.3	-15.7	-14.8	-17.9	-18.0	-14.4	-12.4	-9.9	-11.7	-15.0	-14.3	-12.9	-12.4	-14.4	-16.9	-16.2	-17.2	-18.4	-16.7	-13.2	-10.1	-10.9	-13.0	-14.5	-14.3	-14.8	-15.0	-11.6	-9.4	-8.4	-10.4	-9.8	-10.7	-10.8	-11.8	-13.4
-19.5	-19.5	-17.4	-15.8	-13.5	-11.7	-10.0	-11.5	-13.3	-14.7	-11.3	-9.6	-14.3	-14.2	-13.4	-14.5	-15.0	-14.3	-12.3	-7.8	-6.0	-6.7	-8.6	-10.9	-11.7	-13.4	-9.6	-1.8	-1.9	-4.4	-7.1	-11.2	-13.1	-14.8	-17.7	-18.9
-16.1	-10.4	-8.7	-9.9	-11.7	-8.8	-5.1	-8.0	-9.2	-5.8	-9.2	-16.4	-16.7	-9.4	-8.1	-9.4	-11.6	-10.2	-8.9	-3.2	-1.9	-2.1	-3.0	-1.2	-.6	-1.8	2.6	-2.2	-9.3	-11.4	-12.9	-13.9	-16.7	-17.0	-17.5	-16.2
-6.0	-8.2	-5.4	-8.6	-12.3	-9.0	-5.1	-5.5	-11.5	-13.3	-11.9	-13.4	-7.5	-7.6	-11.5	-10.2	-8.1	-7.4	-3.1	4.0	.2	.3	-.8	.3	.9	-1.6	-1.9	-10.7	-11.1	-8.1	-8.2	-8.4	-5.3	-3.7	-5.0	-6.4
-11.0	-8.7	-7.3	-11.2	-9.9	-12.1	-13.2	-10.8	-13.9	-14.9	-9.4	-13.0	-12.6	-14.0	-18.3	-12.7	-11.1	-8.5	-1.2	-2.7	1.3	-1.3	-.8	-1.9	-3.6	-7.5	-12.1	-18.7	-13.1	-6.6	-10.6	-8.8	-8.0	-12.5	-9.6	-9.4
-16.6	-14.4	-10.9	-10.7	-9.8	-8.6	-8.8	-10.1	-10.5	-9.6	-22.1	-15.2	-9.7	-9.2	-15.2	-17.8	-13.6	-7.4	-13.8	-18.4	-17.8	-11.9	-5.9	-5.0	-8.5	-15.3	-17.2	-23.6	-27.9	-23.5	-15.8	-14.1	-14.1	-20.3	-18.1	-15.8
-7.2	-7.4	-3.7	-2.7	-1.7	-1.3	-2.2	-3.7	-4.2	-4.8	-17.6	-22.7	-17.9	-10.3	-3.8	-3.4	-3.7	-3.1	-4.8	-11.8	-21.3	-7.7	-1.9	-3.1	-7.6	-14.7	-22.8	-28.8	-28.3	-14.4	-6.5	-13.0	-15.8	-18.2	-16.3	-10.9
-8.1	-12.3	-15.0	-12.9	-7.5	-4.5	-4.2	-5.2	-6.8	-6.6	-8.7	-17.6	-24.3	-20.4	-11.5	-9.0	-6.7	-6.2	-4.6	-2.5	-8.3	-4.9	-4.5	-3.9	-3.9	-6.2	-8.9	-9.1	-6.3	-4.3	-1.7	-6.1	-5.0	-7.8	-7.5	-7.1
-12.4	-13.1	-16.9	-18.0	-21.1	-13.8	-9.3	-10.7	-8.1	-7.1	-5.1	-4.9	-18.0	-18.2	-15.0	-14.7	-15.9	-9.2	-6.8	-2.0	-8.3	-9.8	-5.5	-7.4	-6.7	-6.0	-6.6	-6.7	-7.5	-.1	-6.0	-11.8	-8.6	-7.0	-9.5	-11.5
-18.8	-12.3	-11.4	-15.1	-17.4	-16.4	-15.4	-17.7	-15.0	-12.4	-7.2	-10.5	-20.0	-21.3	-16.7	-15.6	-16.1	-14.4	-13.5	-12.2	-12.7	-15.2	-14.2	-13.2	-11.5	-10.5	-10.3	-10.0	-9.7	-8.0	-9.9	-10.3	-9.1	-11.7	-12.3	-15.1
-14.2	-12.1	-11.0	-11.7	-11.8	-13.7	-14.4	-14.1	-15.5	-14.3	-10.8	-9.7	-11.8	-14.2	-12.6	-13.1	-13.9	-13.4	-13.6	-12.3	-13.8	-14.8	-14.5	-15.9	-14.9	-15.5	-15.6	-13.5	-12.9	-13.7	-14.0	-14.5	-12.1	-12.4	-12.6	-15.6
-15.3	-15.5	-14.3	-14.1	-15.0	-16.3	-16.5	-16.5	-17.6	-17.4	-18.1	-16.7	-14.9	-13.5	-12.6	-13.9	-12.9	-14.6	-15.7	-15.4	-15.6	-15.6	-16.0	-16.4	-17.1	-17.8	-16.6	-14.6	-15.8	-15.2	-15.6	-14.8	-13.4	-13.3	-13.4	-13.9
-15.0	-14.6	-13.9	-14.1	-15.0	-16.3	-17.6	-17.3	-18.0	-19.5	-19.3	-20.3	-20.7	-19.3	-19.2	-18.9	-16.4	-16.4	-17.3	-15.1	-12.4	-11.5	-10.5	-8.8	-11.6	-14.8	-13.5	-11.1	-9.2	-8.8	-10.0	-8.7	-10.0	-12.2	-13.9	-14.1
-12.3	-11.0	-9.8	-9.7	-9.3	-9.9	-10.6	-11.1	-10.7	-10.9	-13.2	-13.3	-15.6	-13.0	-10.9	-8.0	-9.7	-7.7	-5.3	-3.4	-2.3	-.6	.7	.0	-.8	-1.3	.7	1.4	.7	1.3	1.1	1.0	.2	-1.2	-4.8	-10.2
-8.5	-9.1	-7.6	-4.4	-5.3	-5.6	-4.9	-2.9	-2.0	-4.0	-6.9	-8.0	-7.4	-5.6	-4.1	-2.7	-1.5	-.6	-.5	-.2	.1	-.1	-.2	-.5	-.3	.8	.8	.8	.6	.9	.1	-.7	-2.3	-1.2	-7.0	-8.9

Figure 43. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



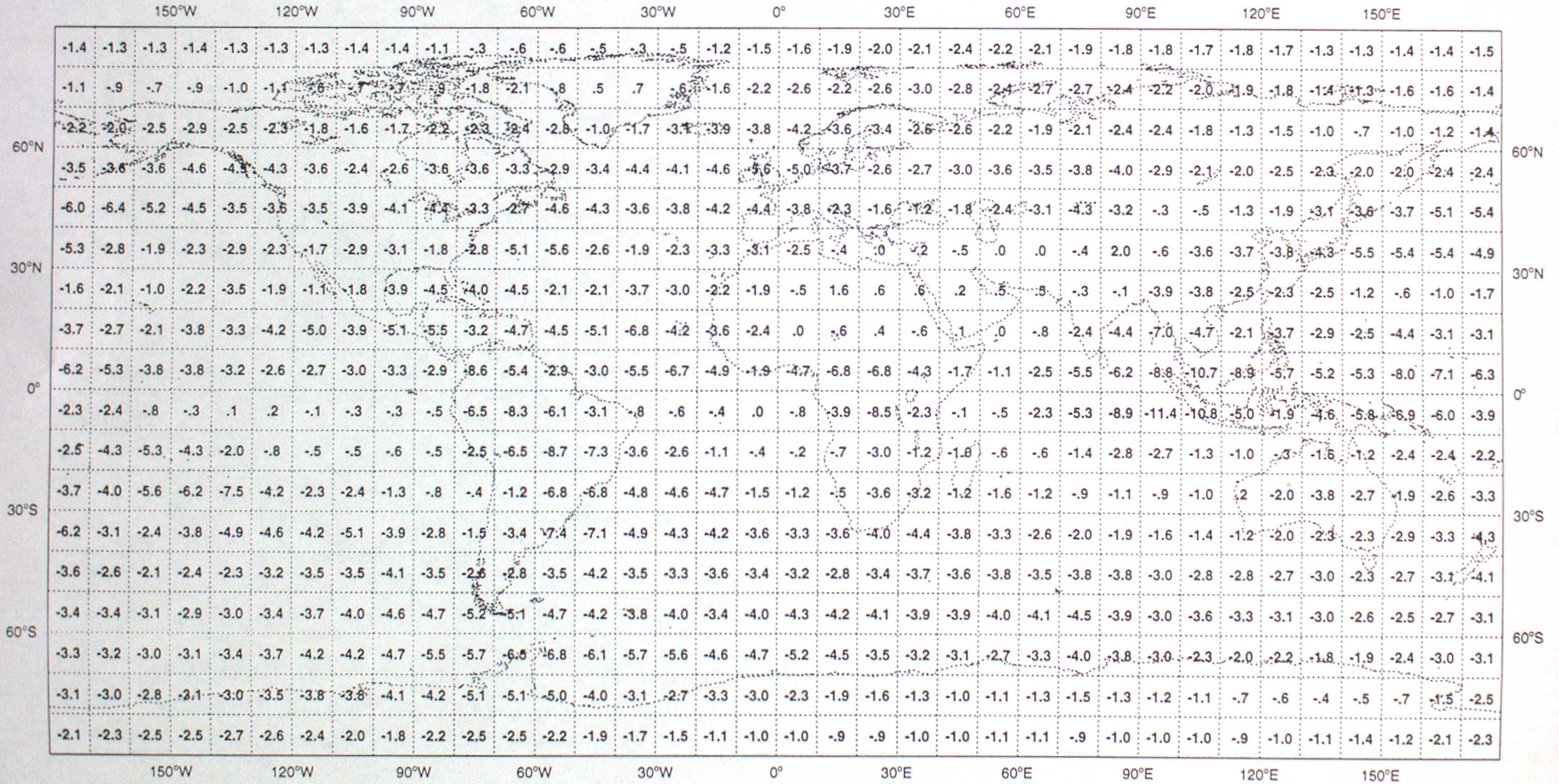
-3.0	-2.7	-2.7	-2.8	-2.7	-2.7	-2.8	-2.9	-2.8	-2.4	-1.1	-1.6	-1.5	-1.4	-1.2	-1.4	-2.2	-2.6	-2.4	-2.5	-2.6	-2.7	-3.2	-3.2	-3.3	-3.0	-2.8	-2.9	-2.8	-2.8	-2.9	-2.6	-2.7	-3.0	-3.0	-3.1
-2.0	-1.9	-1.7	-1.9	-1.9	-1.9	-1.5	-1.6	-1.4	-1.7	-2.4	-2.5	-1.1	-.3	-.3	-1.4	-1.7	-2.0	-1.9	-1.7	-2.4	-2.8	-2.8	-2.6	-2.8	-2.8	-2.8	-2.9	-2.9	-2.7	-2.4	-1.8	-1.9	-2.2	-2.5	-2.3
-2.8	-2.3	-3.3	-4.0	-3.3	-2.8	-2.2	-2.2	-2.2	-2.5	-2.4	-2.5	-2.5	-1.7	-1.5	-2.4	-3.1	-2.6	-2.8	-2.9	-2.8	-1.8	-2.1	-1.9	-1.6	-1.7	-2.3	-2.9	-2.2	-1.5	-1.7	-1.1	-1.1	-1.4	-2.0	-2.4
-3.1	-3.2	-3.2	-3.8	-4.4	-4.5	-3.5	-2.1	-2.3	-3.0	-3.2	-3.0	-2.1	-2.4	-2.9	-2.7	-3.3	-4.3	-3.7	-2.4	-1.3	-1.5	-1.7	-2.6	-2.4	-2.7	-3.1	-2.6	-1.9	-2.2	-2.4	-1.9	-1.1	-1.3	-1.8	-2.1
-4.5	-4.8	-3.7	-2.7	-1.7	-2.1	-2.9	-2.8	-3.3	-3.5	-2.4	-1.7	-3.3	-2.7	-1.4	-1.5	-2.2	-2.8	-2.3	-1.4	-.6	.8	.0	-.2	-1.2	-3.1	-2.6	-.5	-.4	-.3	-.5	-1.2	-1.9	-2.4	-3.4	-4.1
-2.9	-.9	-.1	-.3	-.6	-.2	-.5	-1.8	-2.2	-.7	-1.0	-3.0	-3.2	-.6	.0	-.2	-1.4	-1.8	-1.0	.5	.7	.5	.5	.7	.7	-.2	2.8	-.6	-1.5	-.5	-1.0	-1.8	-2.8	-2.7	-2.4	-2.5
.3	.2	1.1	.0	-1.1	.5	.7	-.4	-1.9	-2.6	-1.9	-3.0	-.8	-.6	-2.2	-1.2	-.5	-1.1	-.8	1.0	1.6	2.0	.3	1.4	1.7	.6	1.1	-1.7	-.1	.7	.2	-1.1	.3	1.2	.5	.1
-1.5	-.9	-.5	-2.2	-1.5	-2.7	-4.1	-2.6	-4.3	-4.9	-2.3	-3.6	-2.8	-3.1	-5.2	-3.0	-3.6	-2.5	-.5	-1.1	1.4	1.5	.6	1.6	.7	-.8	-3.0	-6.5	-3.5	-.5	-3.0	-1.7	-1.3	-3.5	-1.6	-1.1
-5.6	-4.4	-2.5	-2.1	-1.4	-.7	-.7	-.8	-1.2	-.6	-8.1	-5.9	-1.1	-.6	-3.3	-5.3	-3.7	.0	-3.0	-5.6	-5.0	-2.2	.5	.9	.1	-3.3	-4.3	-7.4	-9.9	-8.7	-5.0	-4.2	-3.9	-7.3	-6.6	-5.2
-1.6	-1.4	.6	1.4	2.1	2.2	2.2	2.0	2.3	1.7	-5.1	-8.6	-5.5	-2.1	.5	1.4	1.7	2.5	2.2	-1.1	-5.7	-.5	1.7	1.5	-.2	-3.3	-7.3	-9.5	-9.7	-3.6	-.3	-3.7	-4.8	-6.5	-5.5	-2.9
-.5	-1.8	-2.8	-2.0	.2	1.5	1.6	1.9	2.0	2.1	-1.1	-5.4	-7.0	-4.9	-1.9	-.7	1.1	1.2	1.2	-.6	-1.7	.1	1.1	1.7	1.5	.7	-.8	-.3	.9	1.1	.6	.0	.1	-1.7	-.9	-.1
-1.5	-1.6	-3.2	-3.6	-5.5	-2.5	-.3	-.1	1.0	1.4	1.9	.6	-5.4	-4.4	-2.4	-2.3	-2.7	.7	.7	.0	-2.7	-1.5	.5	.6	.9	1.1	1.3	1.0	1.2	.6	-.9	-1.5	-1.3	-.3	-.6	-1.0
-4.3	-1.4	-.7	-2.2	-3.4	-3.0	-2.6	-3.4	-2.0	-1.0	.0	-2.6	-5.9	-4.6	-2.9	-2.8	-2.8	-2.0	-1.5	-1.5	-2.1	-2.3	-1.9	-1.1	-.6	-.3	.2	.1	.1	.1	-1.0	-.9	-1.4	-1.7	-1.9	-2.5
-2.4	-1.4	-1.0	-1.2	-1.4	-2.4	-2.6	-2.5	-3.2	-2.4	-1.6	-2.4	-2.6	-3.1	-2.4	-2.1	-2.6	-2.4	-2.1	-1.3	-2.1	-2.7	-2.7	-3.0	-2.6	-3.0	-2.8	-1.9	-1.8	-1.8	-1.8	-1.9	-1.4	-2.0	-2.3	-3.3
-3.3	-2.9	-2.7	-2.9	-3.1	-3.6	-4.0	-3.9	-4.5	-4.5	-4.7	-5.2	-4.6	-4.0	-3.7	-3.9	-3.2	-4.0	-4.2	-4.0	-3.9	-3.6	-3.9	-4.2	-4.3	-5.1	-4.6	-3.4	-4.4	-4.0	-3.7	-3.5	-3.2	-2.8	-2.8	-2.9
-4.8	-4.5	-4.3	-4.7	-4.9	-5.2	-5.7	-5.4	-5.8	-6.4	-6.7	-8.3	-8.9	-7.8	-7.1	-6.8	-5.6	-5.8	-6.6	-5.7	-4.1	-3.6	-3.7	-3.2	-4.1	-5.3	-5.1	-4.0	-3.3	-3.0	-3.3	-2.7	-3.2	-3.8	-4.5	-4.4
-4.9	-4.9	-4.7	-4.9	-4.8	-5.4	-6.0	-6.0	-6.4	-6.4	-8.0	-8.5	-7.8	-6.0	-4.5	-3.7	-4.9	-4.8	-3.5	-2.4	-1.4	-.6	.1	-.3	-.8	-1.1	.1	.5	.2	.7	.7	.6	.0	-1.0	-2.2	-4.0
-4.1	-4.6	-4.9	-4.5	-4.8	-4.7	-4.5	-3.8	-3.6	-4.5	-5.0	-5.0	-4.5	-3.9	-3.4	-2.9	-1.8	-1.1	-.9	-.5	-.3	-.4	-.3	-.5	-.4	.4	.3	.2	.1	.2	-.4	-1.0	-2.1	-1.5	-3.5	-4.2

Figure 45. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



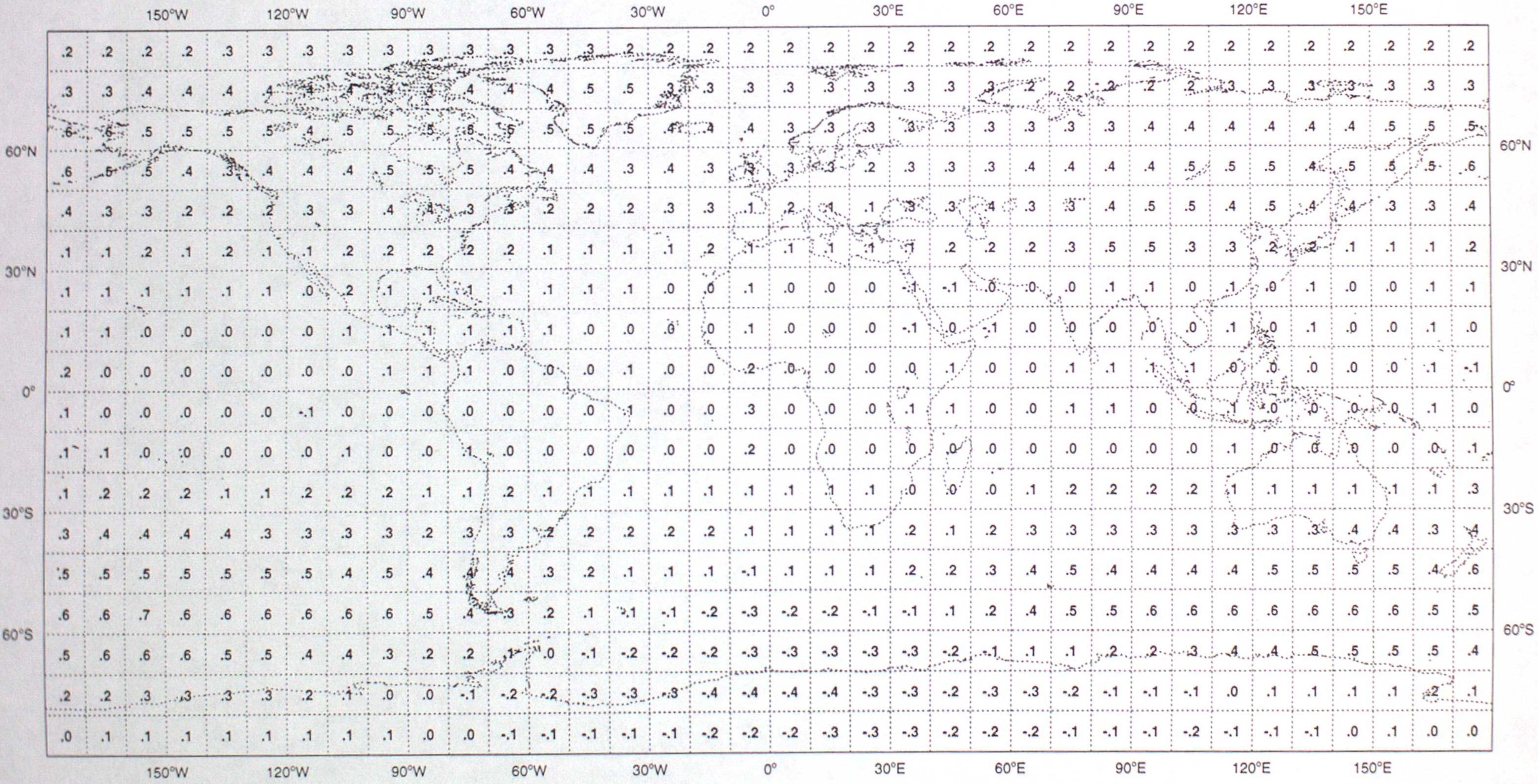
-.1	-.3	-.3	-.2	-.2	-.2	-.1	.0	.1	.5	.9	.2	-.2	-.3	.0	.4	.2	.1	.0	-.1	.0	.1	-.1	-.3	.0	.0	.0	-.1	-.2	-.2	-.1	.1	.1	.1	.1	.1
.2	.2	.2	.2	.2	.2	.3	.1	.0	.3	.2	.2	.1	-.3	-.7	.0	.2	.2	.4	.2	.1	.3	.3	.0	.1	.0	.0	.2	.4	.2	.0	.1	.1	.2	.2	.2
.2	.2	.7	.8	.8	.5	.3	.5	.3	.1	.0	.1	.2	.0	.3	.2	.2	.3	.2	.2	.2	.1	.2	.3	.3	.3	.4	.8	.8	.7	.6	.9	1.0	.7	.7	.6
.3	.1	.1	.3	.1	.4	.4	.3	.1	.2	.1	.2	.3	.5	.4	.4	.3	.2	.0	.0	.3	.4	.4	.4	.3	.2	.3	.6	.6	1.0	.6	.5	.2	.2	.3	.3
.3	.3	.4	.4	.4	.3	.6	.4	.2	.1	.2	.1	.3	.4	.4	.3	.3	.1	.0	.2	.4	.1	.3	.1	.3	.2	.4	1.1	1.3	1.0	.6	.3	.1	.3	.4	.3
.3	.3	.4	.4	.4	.3	.5	.6	.2	.2	.1	.2	.2	.3	.4	.3	.2	.1	.0	.1	.0	.2	.5	.8	.9	.7	1.1	1.8	.9	.4	.0	.0	.2	.2	.3	.3
.3	.3	.3	.4	.3	.4	.2	.5	.0	-.1	-.3	.1	.3	.3	.3	.3	.3	.3	.4	.8	.2	.2	.2	.2	.4	.5	.8	.3	.3	.2	.1	.2	.3	.3	.3	.3
.2	.3	.4	.3	.3	.2	.2	.1	.0	-.2	.0	-.2	.1	.2	.2	.2	.1	.0	.4	.4	.7	.9	.4	.2	.3	.2	.1	-.2	-.2	.2	.0	.2	.2	.2	.2	.3
.0	.1	.2	.3	.3	.3	.3	.3	.3	.4	-.3	.0	.0	.3	.2	.2	.2	.2	.0	-.2	-.1	.6	.6	.3	.2	.1	.1	-.2	-.5	-.2	-.1	.1	.1	.0	-.1	.0
.2	.3	.4	.4	.4	.4	.4	.3	.4	.3	-.2	-.6	-.5	.1	.4	.4	.4	.5	.4	.0	-.1	.6	.3	.4	.3	.2	.0	-.2	-.3	-.2	-.1	-.1	-.2	-.1	.0	.1
.1	.2	.1	.1	.3	.3	.4	.4	.4	.3	.7	.3	-.6	-.2	.2	.3	.4	.5	.4	.6	.5	.5	.1	.3	.3	.4	.3	.4	.4	.3	.4	.2	.2	.3	.0	.1
.4	.4	.3	.1	.1	.3	.3	.4	.4	.4	.3	1.2	.1	.0	.2	.3	.3	.4	.4	.8	.6	.3	.4	.3	.4	.4	.3	.5	.5	.9	.5	.2	.4	.3	.2	.3
.3	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.5	.1	.3	.3	.3	.3	.3	.3	.4	.5	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.3	.4	.3	.4	.1
.3	.4	.5	.5	.5	.5	.4	.4	.4	.4	.4	.5	.4	.4	.4	.3	.2	.1	.1	.3	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.3	.1
.3	.4	.5	.5	.5	.6	.5	.5	.5	.4	.2	.2	.3	.3	.2	-.1	-.2	-.2	-.2	-.1	.1	.2	.3	.3	.3	.3	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4
.1	.0	.0	-.1	.0	.3	.3	.3	.3	.2	.0	-.3	-.3	-.3	-.4	-.4	-.2	.0	.1	.2	.2	.2	.0	-.3	-.2	.1	-.3	-.4	-.2	.1	.0	.1	.0	.0	.1	.1
-.3	-.1	-.2	-.2	-.4	-.6	-.3	-.4	-.5	-.3	-.5	-.8	-.7	-.5	-.3	-.5	-1.5	-3.0	-3.8	-3.8	-3.2	-2.9	-3.1	-3.1	-2.2	-2.3	-2.4	-2.4	-2.8	-2.6	-2.7	-2.4	-2.1	-1.8	-.5	-.4
-1.4	-1.2	-.9	-.5	-.8	-1.0	-1.1	-.8	-.7	-.7	-1.0	-1.2	-1.2	-1.3	-1.5	-1.8	-2.1	-2.5	-2.9	-3.2	-3.8	-4.2	-4.2	-4.2	-4.3	-4.1	-4.1	-4.2	-4.2	-3.6	-3.5	-3.4	-3.3	-1.9	-1.6	-1.5

Figure 44. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



-1.4	-1.3	-1.3	-1.4	-1.3	-1.3	-1.3	-1.4	-1.4	-1.1	-.3	-.6	-.6	-.5	-.3	-.5	-1.2	-1.5	-1.6	-1.9	-2.0	-2.1	-2.4	-2.2	-2.1	-1.9	-1.8	-1.8	-1.7	-1.8	-1.7	-1.3	-1.3	-1.4	-1.4	-1.5
-1.1	-.9	-.7	-.9	-1.0	-1.1	-.6	-.7	-.7	-.9	-1.8	-2.1	-.8	.5	.7	-.6	-1.6	-2.2	-2.6	-2.2	-2.6	-3.0	-2.8	-2.4	-2.7	-2.7	-2.4	-2.2	-2.0	-1.9	-1.8	-1.4	-1.3	-1.6	-1.6	-1.4
-2.2	-2.0	-2.5	-2.9	-2.5	-2.3	-1.8	-1.6	-1.7	-2.2	-2.3	-2.4	-2.8	-1.0	-1.7	-3.1	-3.9	-3.8	-4.2	-3.6	-3.4	-2.6	-2.6	-2.2	-1.9	-2.1	-2.4	-2.4	-1.8	-1.3	-1.5	-1.0	-.7	-1.0	-1.2	-1.4
-3.5	-3.6	-3.6	-4.6	-4.5	-4.3	-3.6	-2.4	-2.6	-3.6	-3.6	-3.3	-2.9	-3.4	-4.4	-4.1	-4.6	-5.6	-5.0	-3.7	-2.6	-2.7	-3.0	-3.6	-3.5	-3.8	-4.0	-2.9	-2.1	-2.0	-2.5	-2.3	-2.0	-2.0	-2.4	-2.4
-6.0	-6.4	-5.2	-4.5	-3.5	-3.6	-3.5	-3.9	-4.1	-4.4	-3.3	-2.7	-4.6	-4.3	-3.6	-3.8	-4.2	-4.4	-3.8	-2.3	-1.6	-1.2	-1.8	-2.4	-3.1	-4.3	-3.2	-.3	-.5	-1.3	-1.9	-3.1	-3.6	-3.7	-5.1	-5.4
-5.3	-2.8	-1.9	-2.3	-2.9	-2.3	-1.7	-2.9	-3.1	-1.8	-2.8	-5.1	-5.6	-2.6	-1.9	-2.3	-3.3	-3.1	-2.5	-.4	.0	-.2	-.5	.0	.0	-.4	2.0	-.6	-3.6	-3.7	-3.8	-4.3	-5.5	-5.4	-5.4	-4.9
-1.6	-2.1	-1.0	-2.2	-3.5	-1.9	-1.1	-1.8	-3.9	-4.5	-4.0	-4.5	-2.1	-2.1	-3.7	-3.0	-2.2	-1.9	-.5	1.6	.6	.6	.2	.5	.5	-.3	-.1	-3.9	-3.8	-2.5	-2.3	-2.5	-1.2	-.6	-1.0	-1.7
-3.7	-2.7	-2.1	-3.8	-3.3	-4.2	-5.0	-3.9	-5.1	-5.5	-3.2	-4.7	-4.5	-5.1	-6.8	-4.2	-3.6	-2.4	.0	-.6	.4	-.6	.1	.0	-.8	-2.4	-4.4	-7.0	-4.7	-2.1	-3.7	-2.9	-2.5	-4.4	-3.1	-3.1
-6.2	-5.3	-3.8	-3.8	-3.2	-2.6	-2.7	-3.0	-3.3	-2.9	-8.6	-5.4	-2.9	-3.0	-5.5	-6.7	-4.9	-1.9	-4.7	-6.8	-6.8	-4.3	-1.7	-1.1	-2.5	-5.5	-6.2	-8.8	-10.7	-8.9	-5.7	-5.2	-5.3	-8.0	-7.1	-6.3
-2.3	-2.4	-.8	-.3	.1	.2	-.1	-.3	-.3	-.5	-6.5	-8.3	-6.1	-3.1	-.8	-.6	-.4	.0	-.8	-3.9	-8.5	-2.3	-.1	-.5	-2.3	-5.3	-8.9	-11.4	-10.8	-5.0	-1.9	-4.6	-5.8	-6.9	-6.0	-3.9
-2.5	-4.3	-5.3	-4.3	-2.0	-.8	-.5	-.5	-.6	-.5	-2.5	-6.5	-8.7	-7.3	-3.6	-2.6	-1.1	-.4	-.2	-.7	-3.0	-1.2	-1.0	-.6	-.6	-1.4	-2.8	-2.7	-1.3	-1.0	-.3	-1.6	-1.2	-2.4	-2.4	-2.2
-3.7	-4.0	-5.6	-6.2	-7.5	-4.2	-2.3	-2.4	-1.3	-.8	-.4	-1.2	-6.8	-6.8	-4.8	-4.6	-4.7	-1.5	-1.2	-.5	-3.6	-3.2	-1.2	-1.6	-1.2	-.9	-1.1	-.9	-1.0	.2	-2.0	-3.8	-2.7	-1.9	-2.6	-3.3
-6.2	-3.1	-2.4	-3.8	-4.9	-4.6	-4.2	-5.1	-3.9	-2.8	-1.5	-3.4	-7.4	-7.1	-4.9	-4.3	-4.2	-3.6	-3.3	-3.6	-4.0	-4.4	-3.8	-3.3	-2.6	-2.0	-1.9	-1.6	-1.4	-1.2	-2.0	-2.3	-2.3	-2.9	-3.3	-4.3
-3.6	-2.6	-2.1	-2.4	-2.3	-3.2	-3.5	-3.5	-4.1	-3.5	-2.6	-2.8	-3.5	-4.2	-3.5	-3.3	-3.6	-3.4	-3.2	-2.8	-3.4	-3.7	-3.6	-3.8	-3.5	-3.8	-3.8	-3.0	-2.8	-2.8	-2.7	-3.0	-2.3	-2.7	-3.1	-4.1
-3.4	-3.4	-3.1	-2.9	-3.0	-3.4	-3.7	-4.0	-4.6	-4.7	-5.2	-5.1	-4.7	-4.2	-3.8	-4.0	-3.4	-4.0	-4.3	-4.2	-4.1	-3.9	-3.9	-4.0	-4.1	-4.5	-3.9	-3.0	-3.6	-3.3	-3.1	-3.0	-2.6	-2.5	-2.7	-3.1
-3.3	-3.2	-3.0	-3.1	-3.4	-3.7	-4.2	-4.2	-4.7	-5.5	-5.7	-6.5	-6.8	-6.1	-5.7	-5.6	-4.6	-4.7	-5.2	-4.5	-3.5	-3.2	-3.1	-2.7	-3.3	-4.0	-3.8	-3.0	-2.3	-2.0	-2.2	-1.8	-1.9	-2.4	-3.0	-3.1
-3.1	-3.0	-2.8	-3.1	-3.0	-3.5	-3.8	-3.8	-4.1	-4.2	-5.1	-5.1	-5.0	-4.0	-3.1	-2.7	-3.3	-3.0	-2.3	-1.9	-1.6	-1.3	-1.0	-1.1	-1.3	-1.5	-1.3	-1.2	-1.1	-.7	-.6	-.4	-.5	-.7	-1.5	-2.5
-2.1	-2.3	-2.5	-2.5	-2.7	-2.6	-2.4	-2.0	-1.8	-2.2	-2.5	-2.5	-2.2	-1.9	-1.7	-1.5	-1.1	-1.0	-1.0	-.9	-.9	-1.0	-1.0	-1.1	-1.1	-.9	-1.0	-1.0	-1.0	-.9	-1.0	-1.1	-1.4	-1.2	-2.1	-2.3

Figure 46. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3
.6	.6	.5	.5	.5	.5	.4	.5	.5	.5	.6	.5	.5	.5	.5	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.5	.5	.5
.6	.5	.5	.4	.3	.4	.4	.4	.5	.5	.5	.4	.4	.4	.3	.4	.3	.3	.3	.3	.2	.3	.3	.3	.4	.4	.4	.4	.5	.5	.5	.4	.5	.5	.5	.6
.4	.3	.3	.2	.2	.2	.3	.3	.4	.4	.3	.3	.2	.2	.2	.3	.3	.1	.2	.1	.1	.3	.3	.4	.3	.3	.4	.5	.5	.4	.5	.4	.4	.3	.3	.4
.1	.1	.2	.1	.2	.1	.1	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.2	.2	.2	.3	.5	.5	.3	.3	.2	.2	.1	.1	.1	.2
.1	.1	.1	.1	.1	.1	.0	.2	.1	.1	.1	.1	.1	.1	.1	.0	.0	.1	.0	.0	.0	-.1	-.1	.0	.0	.0	.1	.1	.0	.1	.0	.1	.0	.0	.1	.1
.1	.1	.0	.0	.0	.0	.0	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	-.1	.0	-.1	.0	.0	.0	.0	.0	.1	.0	.1	.0	.0	.1	.0
.2	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.0	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0	.1	.0	.0	.1	.1	.1	.1	.0	.0	.0	.0	.0	.1	-.1
.1	.0	.0	.0	.0	.0	-.1	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.3	.0	.0	.0	.1	.1	.0	.0	.1	.1	.0	.0	.1	.0	.0	.0	.0	.1	.0
.1	.1	.0	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.1
.1	.2	.2	.2	.1	.1	.2	.2	.2	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.1	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.3
.3	.4	.4	.4	.4	.3	.3	.3	.3	.2	.3	.3	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.2	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.4
.5	.5	.5	.5	.5	.5	.5	.4	.5	.4	.4	.4	.3	.2	.1	.1	.1	-.1	.1	.1	.1	.2	.2	.3	.4	.5	.4	.4	.4	.4	.5	.5	.5	.5	.4	.6
.6	.6	.7	.6	.6	.6	.6	.6	.6	.5	.4	.3	.2	.1	.1	-.1	-.2	-.3	-.2	-.2	-.1	-.1	.1	.2	.4	.5	.5	.6	.6	.6	.6	.6	.6	.6	.5	.5
.5	.6	.6	.6	.5	.5	.4	.4	.3	.2	.2	.1	.0	-.1	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.2	-.1	.1	.1	.2	.2	.3	.4	.4	.5	.5	.5	.5	.4
.2	.2	.3	.3	.3	.3	.2	.1	.0	.0	-.1	-.2	-.2	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.3	-.3	-.2	-.3	-.3	-.2	-.1	-.1	-.1	.0	.1	.1	.1	.1	.2	.1
.0	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.2	-.3	-.3	-.3	-.2	-.2	-.2	-.1	-.1	-.1	-.2	-.1	-.1	-.1	.0	.1	.0	.0

Figure 47. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: HIRS4 (400 hPa)

NOAA16, using all observations

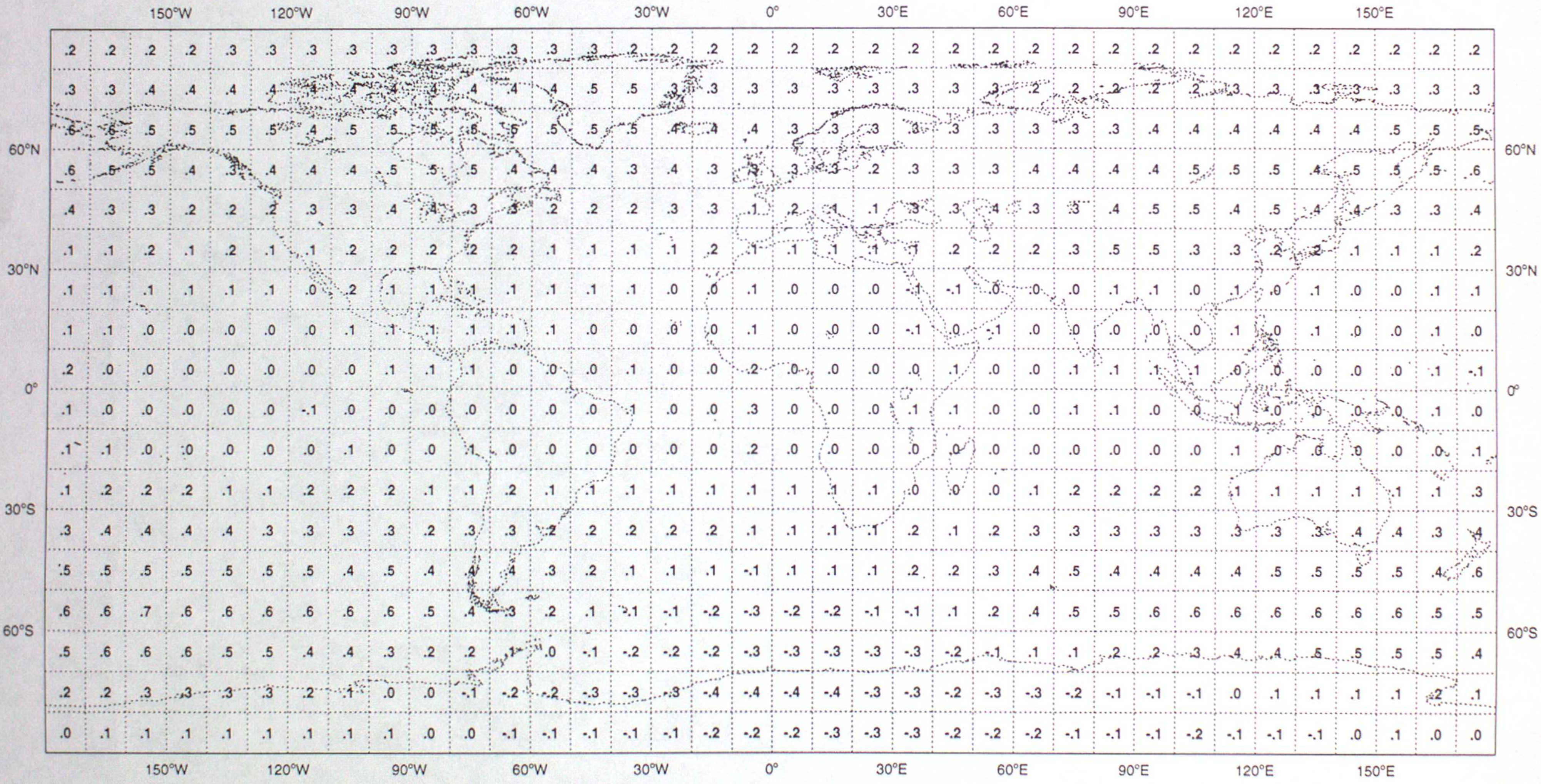
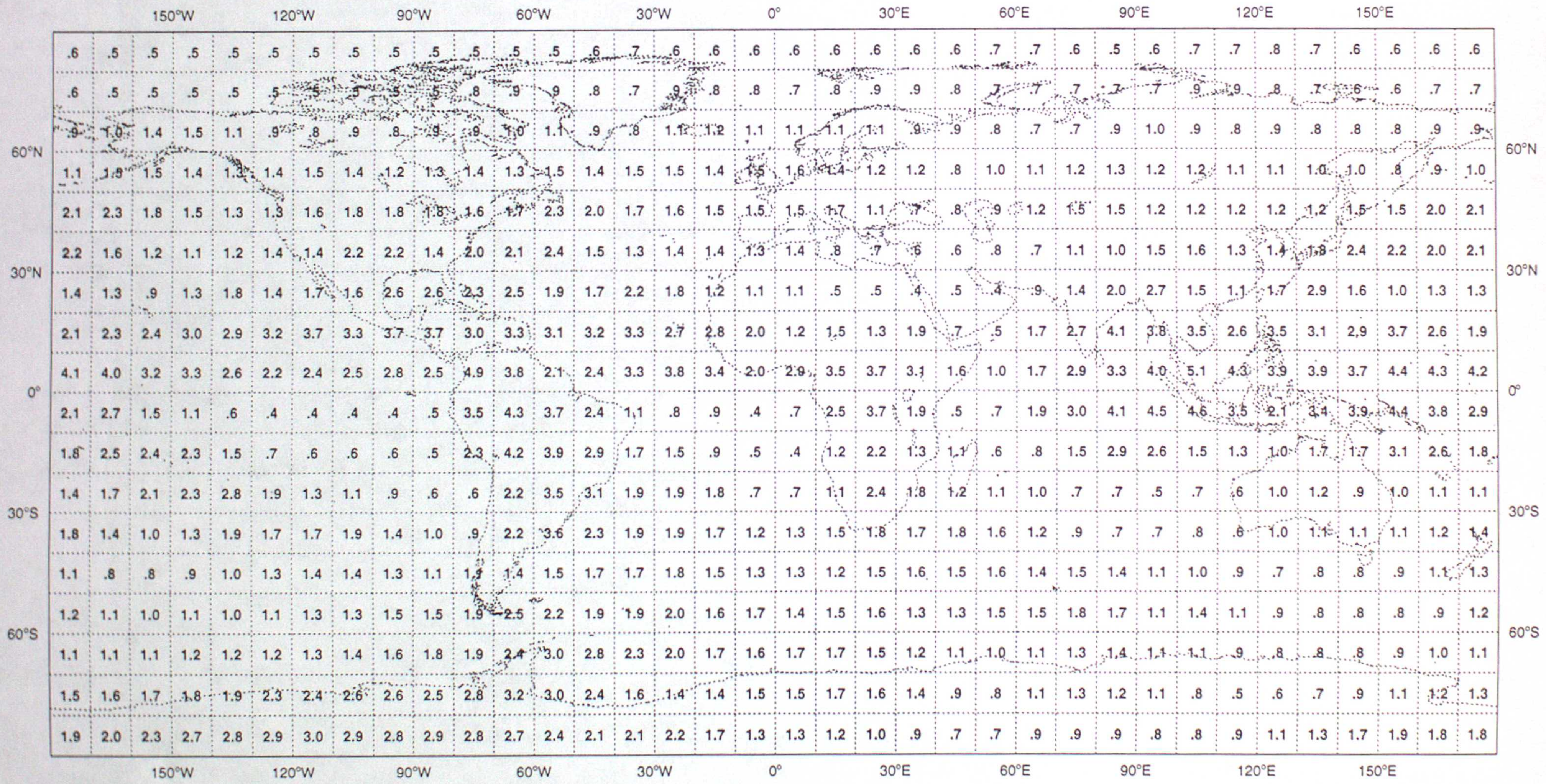

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 48. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001

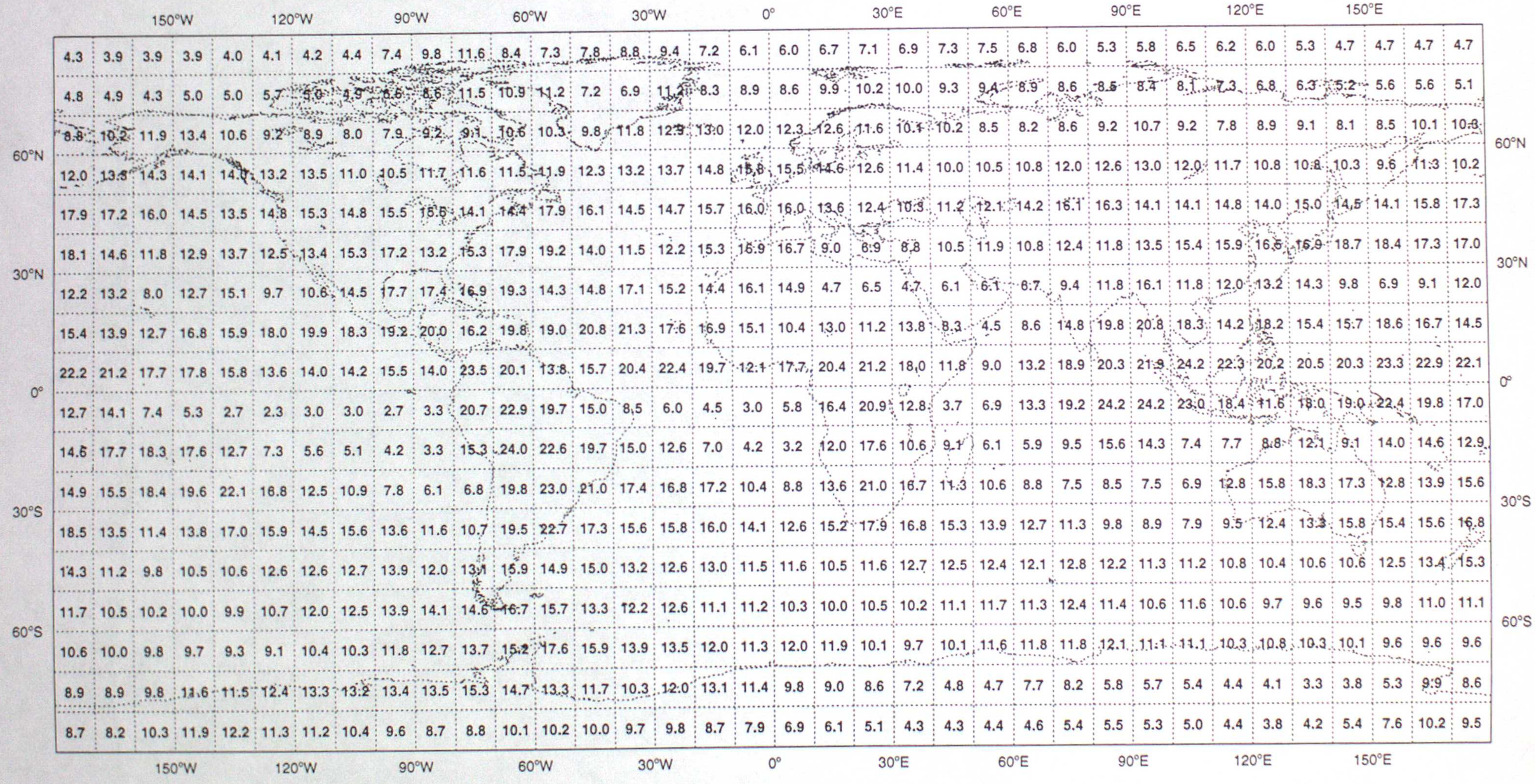
Channel: HIRS4 (400 hPa)

NOAA16, using all observations



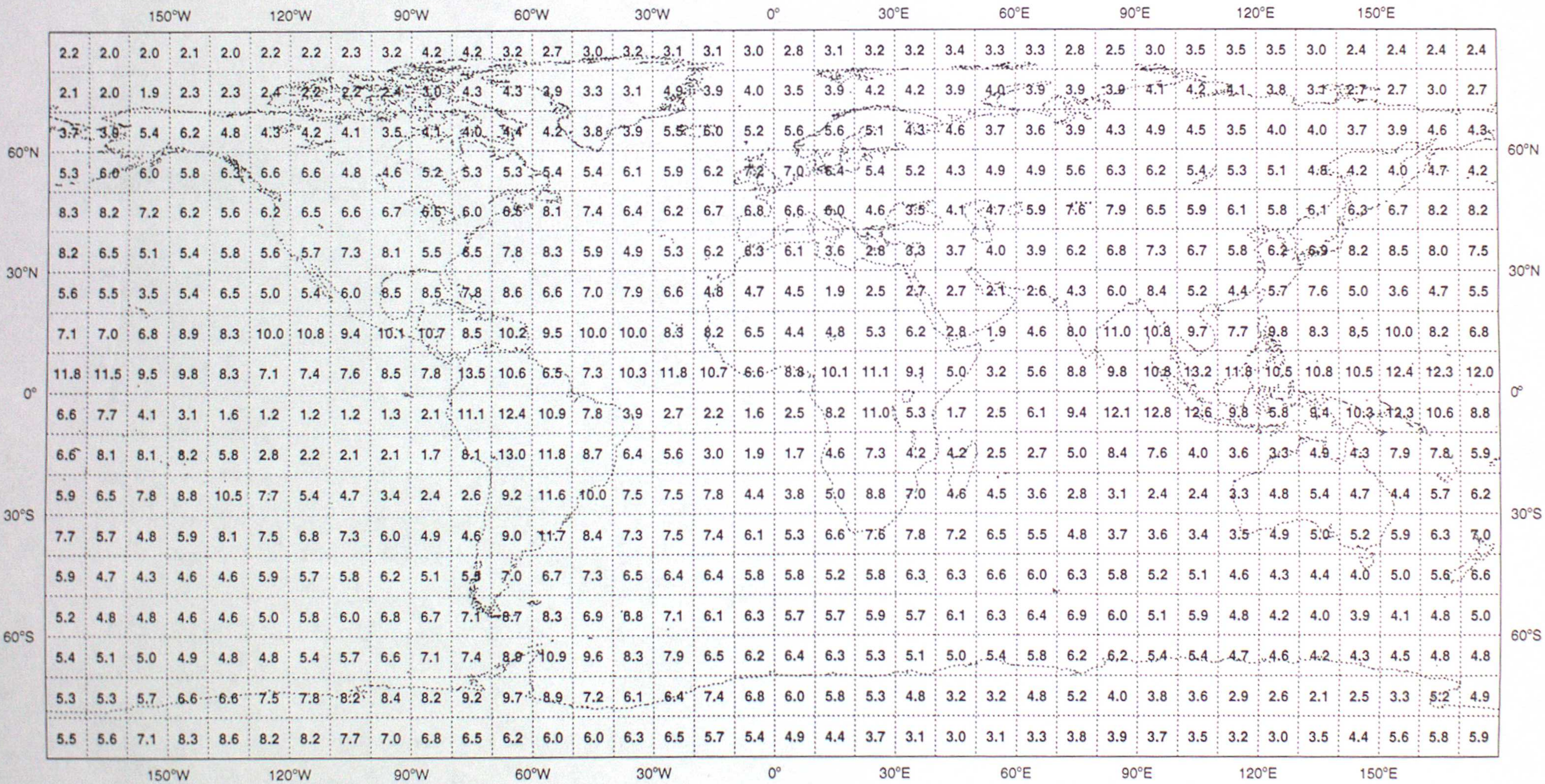
.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.7	.6	.6	.6	.6	.6	.6	.6	.6	.7	.7	.6	.5	.6	.7	.7	.8	.7	.6	.6	.6	.6
.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.8	.9	.9	.8	.7	.9	.8	.8	.7	.8	.9	.9	.8	.7	.7	.7	.7	.7	.9	.9	.8	.7	.6	.6	.7	.7
.9	1.0	1.4	1.5	1.1	.9	.8	.9	.8	.9	.9	1.0	1.1	.9	.8	1.1	1.2	1.1	1.1	1.1	1.1	.9	.9	.8	.7	.7	.9	1.0	.9	.8	.9	.8	.8	.8	.9	.9
1.1	1.5	1.5	1.4	1.3	1.4	1.5	1.4	1.2	1.3	1.4	1.3	1.5	1.4	1.5	1.5	1.4	1.5	1.6	1.4	1.2	1.2	.8	1.0	1.1	1.2	1.3	1.2	1.2	1.1	1.1	1.0	1.0	.8	.9	1.0
2.1	2.3	1.8	1.5	1.3	1.3	1.6	1.8	1.8	1.8	1.6	1.7	2.3	2.0	1.7	1.6	1.5	1.5	1.5	1.7	1.1	.7	.8	.9	1.2	1.5	1.5	1.2	1.2	1.2	1.2	1.2	1.5	1.5	2.0	2.1
2.2	1.6	1.2	1.1	1.2	1.4	1.4	2.2	2.2	1.4	2.0	2.1	2.4	1.5	1.3	1.4	1.4	1.3	1.4	.8	.7	.6	.6	.8	.7	1.1	1.0	1.5	1.6	1.3	1.4	1.8	2.4	2.2	2.0	2.1
1.4	1.3	.9	1.3	1.8	1.4	1.7	1.6	2.6	2.6	2.3	2.5	1.9	1.7	2.2	1.8	1.2	1.1	1.1	.5	.5	.4	.5	.4	.9	1.4	2.0	2.7	1.5	1.1	1.7	2.9	1.6	1.0	1.3	1.3
2.1	2.3	2.4	3.0	2.9	3.2	3.7	3.3	3.7	3.7	3.0	3.3	3.1	3.2	3.3	2.7	2.8	2.0	1.2	1.5	1.3	1.9	.7	.5	1.7	2.7	4.1	3.8	3.5	2.6	3.5	3.1	2.9	3.7	2.6	1.9
4.1	4.0	3.2	3.3	2.6	2.2	2.4	2.5	2.8	2.5	4.9	3.8	2.1	2.4	3.3	3.8	3.4	2.0	2.9	3.5	3.7	3.1	1.6	1.0	1.7	2.9	3.3	4.0	5.1	4.3	3.9	3.9	3.7	4.4	4.3	4.2
2.1	2.7	1.5	1.1	.6	.4	.4	.4	.4	.5	3.5	4.3	3.7	2.4	1.1	.8	.9	.4	.7	2.5	3.7	1.9	.5	.7	1.9	3.0	4.1	4.5	4.6	3.5	2.1	3.4	3.9	4.4	3.8	2.9
1.8	2.5	2.4	2.3	1.5	.7	.6	.6	.6	.5	2.3	4.2	3.9	2.9	1.7	1.5	.9	.5	.4	1.2	2.2	1.3	1.1	.6	.8	1.5	2.9	2.6	1.5	1.3	1.0	1.7	1.7	3.1	2.6	1.8
1.4	1.7	2.1	2.3	2.8	1.9	1.3	1.1	.9	.6	.6	2.2	3.5	3.1	1.9	1.9	1.8	.7	.7	1.1	2.4	1.8	1.2	1.1	1.0	.7	.7	.5	.7	.6	1.0	1.2	.9	1.0	1.1	1.1
1.8	1.4	1.0	1.3	1.9	1.7	1.7	1.9	1.4	1.0	.9	2.2	3.6	2.3	1.9	1.9	1.7	1.2	1.3	1.5	1.8	1.7	1.8	1.6	1.2	.9	.7	.7	.8	.6	1.0	1.1	1.1	1.1	1.2	1.4
1.1	.8	.8	.9	1.0	1.3	1.4	1.4	1.3	1.1	1.1	1.4	1.5	1.7	1.7	1.8	1.5	1.3	1.3	1.2	1.5	1.6	1.5	1.6	1.4	1.5	1.4	1.1	1.0	.9	.7	.8	.8	.9	1.1	1.3
1.2	1.1	1.0	1.1	1.0	1.1	1.3	1.3	1.5	1.5	1.9	2.5	2.2	1.9	1.9	2.0	1.6	1.7	1.4	1.5	1.6	1.3	1.3	1.5	1.5	1.8	1.7	1.1	1.4	1.1	.9	.8	.8	.8	.9	1.2
1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.4	1.6	1.8	1.9	2.4	3.0	2.8	2.3	2.0	1.7	1.6	1.7	1.7	1.5	1.2	1.1	1.0	1.1	1.3	1.4	1.1	1.1	.9	.8	.8	.8	.9	1.0	1.1
1.5	1.6	1.7	1.8	1.9	2.3	2.4	2.6	2.6	2.5	2.8	3.2	3.0	2.4	1.6	1.4	1.4	1.5	1.5	1.7	1.6	1.4	.9	.8	1.1	1.3	1.2	1.1	.8	.5	.6	.7	.9	1.1	1.2	1.3
1.9	2.0	2.3	2.7	2.8	2.9	3.0	2.9	2.8	2.9	2.8	2.7	2.4	2.1	2.1	2.2	1.7	1.3	1.3	1.2	1.0	.9	.7	.7	.9	.9	.9	.8	.8	.9	1.1	1.3	1.7	1.9	1.8	1.8

Figure 49. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations



4.3	3.9	3.9	3.9	4.0	4.1	4.2	4.4	7.4	9.8	11.6	8.4	7.3	7.8	8.8	9.4	7.2	6.1	6.0	6.7	7.1	6.9	7.3	7.5	6.8	6.0	5.3	5.8	6.5	6.2	6.0	5.3	4.7	4.7	4.7	4.7
4.8	4.9	4.3	5.0	5.0	5.7	5.0	4.9	6.6	8.6	11.5	10.9	11.2	7.2	6.9	11.2	8.3	8.9	8.6	9.9	10.2	10.0	9.3	9.4	8.9	8.6	8.5	8.4	8.1	7.3	6.8	6.3	5.2	5.6	5.6	5.1
8.8	10.2	11.9	13.4	10.6	9.2	8.9	8.0	7.9	9.2	9.1	10.6	10.3	9.8	11.8	12.9	13.0	12.0	12.3	12.6	11.6	10.1	10.2	8.5	8.2	8.6	9.2	10.7	9.2	7.8	8.9	9.1	8.1	8.5	10.1	10.3
12.0	13.8	14.3	14.1	14.0	13.2	13.5	11.0	10.5	11.7	11.6	11.5	11.9	12.3	13.2	13.7	14.8	15.8	15.5	14.6	12.6	11.4	10.0	10.5	10.8	12.0	12.6	13.0	12.0	11.7	10.8	10.8	10.3	9.6	11.3	10.2
17.9	17.2	16.0	14.5	13.5	14.8	15.3	14.8	15.5	15.6	14.1	14.4	17.9	16.1	14.5	14.7	15.7	16.0	16.0	13.6	12.4	10.3	11.2	12.1	14.2	16.1	16.3	14.1	14.1	14.8	14.0	15.0	14.5	14.1	15.8	17.3
18.1	14.6	11.8	12.9	13.7	12.5	13.4	15.3	17.2	13.2	15.3	17.9	19.2	14.0	11.5	12.2	15.3	16.9	16.7	9.0	6.9	8.8	10.5	11.9	10.8	12.4	11.8	13.5	15.4	15.9	16.5	16.9	18.7	18.4	17.3	17.0
12.2	13.2	8.0	12.7	15.1	9.7	10.6	14.5	17.7	17.4	16.9	19.3	14.3	14.8	17.1	15.2	14.4	16.1	14.9	4.7	6.5	4.7	6.1	6.1	6.7	9.4	11.8	16.1	11.8	12.0	13.2	14.3	9.8	6.9	9.1	12.0
15.4	13.9	12.7	16.8	15.9	18.0	19.9	18.3	19.2	20.0	16.2	19.8	19.0	20.8	21.3	17.6	16.9	15.1	10.4	13.0	11.2	13.8	8.3	4.5	8.6	14.8	19.8	20.8	18.3	14.2	18.2	15.4	15.7	18.6	16.7	14.5
22.2	21.2	17.7	17.8	15.8	13.6	14.0	14.2	15.5	14.0	23.5	20.1	13.8	15.7	20.4	22.4	19.7	12.1	17.7	20.4	21.2	18.0	11.8	9.0	13.2	18.9	20.3	21.9	24.2	22.3	20.2	20.5	20.3	23.3	22.9	22.1
12.7	14.1	7.4	5.3	2.7	2.3	3.0	3.0	2.7	3.3	20.7	22.9	19.7	15.0	8.5	6.0	4.5	3.0	5.8	16.4	20.9	12.8	3.7	6.9	13.3	19.2	24.2	24.2	23.0	18.4	11.6	18.0	19.0	22.4	19.8	17.0
14.6	17.7	18.3	17.6	12.7	7.3	5.6	5.1	4.2	3.3	15.3	24.0	22.6	19.7	15.0	12.6	7.0	4.2	3.2	12.0	17.6	10.6	9.1	6.1	5.9	9.5	15.6	14.3	7.4	7.7	8.8	12.1	9.1	14.0	14.6	12.9
14.9	15.5	18.4	19.6	22.1	16.8	12.5	10.9	7.8	6.1	6.8	19.8	23.0	21.0	17.4	16.8	17.2	10.4	8.8	13.6	21.0	16.7	11.3	10.6	8.8	7.5	8.5	7.5	6.9	12.8	15.8	18.3	17.3	12.8	13.9	15.6
18.5	13.5	11.4	13.8	17.0	15.9	14.5	15.6	13.6	11.6	10.7	19.5	22.7	17.3	15.6	15.8	16.0	14.1	12.6	15.2	17.9	16.8	15.3	13.9	12.7	11.3	9.8	8.9	7.9	9.5	12.4	13.3	15.8	15.4	15.6	16.8
14.3	11.2	9.8	10.5	10.6	12.6	12.6	12.7	13.9	12.0	13.1	15.9	14.9	15.0	13.2	12.6	13.0	11.5	11.6	10.5	11.6	12.7	12.5	12.4	12.1	12.8	12.2	11.3	11.2	10.8	10.4	10.6	10.6	12.5	13.4	15.3
11.7	10.5	10.2	10.0	9.9	10.7	12.0	12.5	13.9	14.1	14.6	16.7	15.7	13.3	12.2	12.6	11.1	11.2	10.3	10.0	10.5	10.2	11.1	11.7	11.3	12.4	11.4	10.6	11.6	10.6	9.7	9.6	9.5	9.8	11.0	11.1
10.6	10.0	9.8	9.7	9.3	9.1	10.4	10.3	11.8	12.7	13.7	15.2	17.6	15.9	13.9	13.5	12.0	11.3	12.0	11.9	10.1	9.7	10.1	11.6	11.8	11.8	12.1	11.1	11.1	10.3	10.8	10.3	10.1	9.6	9.6	9.6
8.9	8.9	9.8	11.6	11.5	12.4	13.3	13.2	13.4	13.5	15.3	14.7	13.3	11.7	10.3	12.0	13.1	11.4	9.8	9.0	8.6	7.2	4.8	4.7	7.7	8.2	5.8	5.7	5.4	4.4	4.1	3.3	3.8	5.3	9.9	8.6
8.7	8.2	10.3	11.9	12.2	11.3	11.2	10.4	9.6	8.7	8.8	10.1	10.2	10.0	9.7	9.8	8.7	7.9	6.9	6.1	5.1	4.3	4.3	4.4	4.6	5.4	5.5	5.3	5.0	4.4	3.8	4.2	5.4	7.6	10.2	9.5

Figure 50. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations

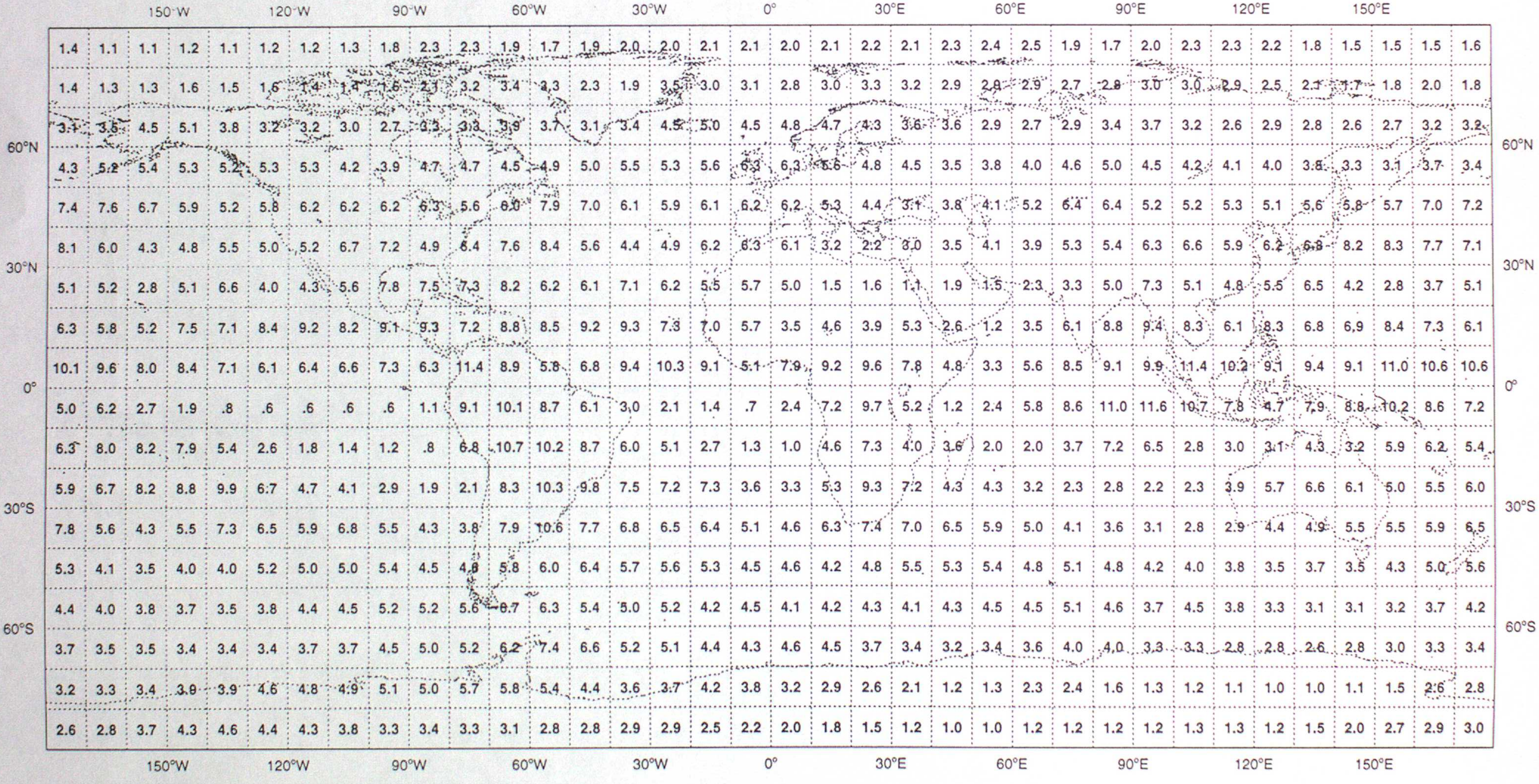


2.2	2.0	2.0	2.1	2.0	2.2	2.2	2.3	3.2	4.2	4.2	3.2	2.7	3.0	3.2	3.1	3.1	3.0	2.8	3.1	3.2	3.2	3.4	3.3	3.3	2.8	2.5	3.0	3.5	3.5	3.5	3.0	2.4	2.4	2.4	2.4
2.1	2.0	1.9	2.3	2.3	2.4	2.2	2.2	2.4	4.0	4.3	4.3	3.9	3.3	3.1	4.9	3.9	4.0	3.5	3.9	4.2	4.2	3.9	4.0	3.9	3.9	3.9	4.1	4.2	4.1	3.8	3.1	2.7	2.7	3.0	2.7
3.7	3.9	5.4	6.2	4.8	4.3	4.2	4.1	3.5	4.1	4.0	4.4	4.2	3.8	3.9	5.5	6.0	5.2	5.6	5.6	5.1	4.3	4.6	3.7	3.6	3.9	4.3	4.9	4.5	3.5	4.0	4.0	3.7	3.9	4.6	4.3
5.3	6.0	6.0	5.8	6.3	6.6	6.6	4.8	4.6	5.2	5.3	5.3	5.4	5.4	6.1	5.9	6.2	7.2	7.0	6.4	5.4	5.2	4.3	4.9	4.9	5.6	6.3	6.2	5.4	5.3	5.1	4.8	4.2	4.0	4.7	4.2
8.3	8.2	7.2	6.2	5.6	6.2	6.5	6.6	6.7	6.6	6.0	6.5	8.1	7.4	6.4	6.2	6.7	6.8	6.6	6.0	4.6	3.5	4.1	4.7	5.9	7.6	7.9	6.5	5.9	6.1	5.8	6.1	6.3	6.7	8.2	8.2
8.2	6.5	5.1	5.4	5.8	5.6	5.7	7.3	8.1	5.5	6.5	7.8	8.3	5.9	4.9	5.3	6.2	6.3	6.1	3.6	2.8	3.3	3.7	4.0	3.9	6.2	6.8	7.3	6.7	5.8	6.2	6.9	8.2	8.5	8.0	7.5
5.6	5.5	3.5	5.4	6.5	5.0	5.4	6.0	8.5	8.5	7.8	8.6	6.6	7.0	7.9	6.6	4.8	4.7	4.5	1.9	2.5	2.7	2.7	2.1	2.6	4.3	6.0	8.4	5.2	4.4	5.7	7.6	5.0	3.6	4.7	5.5
7.1	7.0	6.8	8.9	8.3	10.0	10.8	9.4	10.1	10.7	8.5	10.2	9.5	10.0	10.0	8.3	8.2	6.5	4.4	4.8	5.3	6.2	2.8	1.9	4.6	8.0	11.0	10.8	9.7	7.7	9.8	8.3	8.5	10.0	8.2	6.8
11.8	11.5	9.5	9.8	8.3	7.1	7.4	7.6	8.5	7.8	13.5	10.6	6.5	7.3	10.3	11.8	10.7	6.6	8.8	10.1	11.1	9.1	5.0	3.2	5.6	8.8	9.8	10.8	13.2	11.8	10.5	10.8	10.5	12.4	12.3	12.0
6.6	7.7	4.1	3.1	1.6	1.2	1.2	1.2	1.3	2.1	11.1	12.4	10.9	7.8	3.9	2.7	2.2	1.6	2.5	8.2	11.0	5.3	1.7	2.5	6.1	9.4	12.1	12.8	12.6	9.8	5.8	9.4	10.3	12.3	10.6	8.8
6.6	8.1	8.1	8.2	5.8	2.8	2.2	2.1	2.1	1.7	8.1	13.0	11.8	8.7	6.4	5.6	3.0	1.9	1.7	4.6	7.3	4.2	4.2	2.5	2.7	5.0	8.4	7.6	4.0	3.6	3.3	4.9	4.3	7.9	7.8	5.9
5.9	6.5	7.8	8.8	10.5	7.7	5.4	4.7	3.4	2.4	2.6	9.2	11.6	10.0	7.5	7.5	7.8	4.4	3.8	5.0	8.8	7.0	4.6	4.5	3.6	2.8	3.1	2.4	2.4	3.3	4.8	5.4	4.7	4.4	5.7	6.2
7.7	5.7	4.8	5.9	8.1	7.5	6.8	7.3	6.0	4.9	4.6	9.0	11.7	8.4	7.3	7.5	7.4	6.1	5.3	6.6	7.6	7.8	7.2	6.5	5.5	4.8	3.7	3.6	3.4	3.5	4.9	5.0	5.2	5.9	6.3	7.0
5.9	4.7	4.3	4.6	4.6	5.9	5.7	5.8	6.2	5.1	5.5	7.0	6.7	7.3	6.5	6.4	6.4	5.8	5.8	5.2	5.8	6.3	6.3	6.6	6.0	6.3	5.8	5.2	5.1	4.6	4.3	4.4	4.0	5.0	5.6	6.6
5.2	4.8	4.8	4.6	4.6	5.0	5.8	6.0	6.8	6.7	7.1	8.7	8.3	6.9	6.8	7.1	6.1	6.3	5.7	5.7	5.9	5.7	6.1	6.3	6.4	6.9	6.0	5.1	5.9	4.8	4.2	4.0	3.9	4.1	4.8	5.0
5.4	5.1	5.0	4.9	4.8	4.8	5.4	5.7	6.6	7.1	7.4	8.8	10.9	9.6	8.3	7.9	6.5	6.2	6.4	6.3	5.3	5.1	5.0	5.4	5.8	6.2	6.2	5.4	5.4	4.7	4.6	4.2	4.3	4.5	4.8	4.8
5.3	5.3	5.7	6.6	6.6	7.5	7.8	8.2	8.4	8.2	9.2	9.7	8.9	7.2	6.1	6.4	7.4	6.8	6.0	5.8	5.3	4.8	3.2	3.2	4.8	5.2	4.0	3.8	3.6	2.9	2.6	2.1	2.5	3.3	5.2	4.9
5.5	5.6	7.1	8.3	8.6	8.2	8.2	7.7	7.0	6.8	6.5	6.2	6.0	6.0	6.3	6.5	5.7	5.4	4.9	4.4	3.7	3.1	3.0	3.1	3.3	3.8	3.9	3.7	3.5	3.2	3.0	3.5	4.4	5.6	5.8	5.9

Figure 51. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: AMSUA-7 (300 hPa)

NOAA16, using all observations



1.4	1.1	1.1	1.2	1.1	1.2	1.2	1.3	1.8	2.3	2.3	1.9	1.7	1.9	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.1	2.3	2.4	2.5	1.9	1.7	2.0	2.3	2.3	2.2	1.8	1.5	1.5	1.5	1.6
1.4	1.3	1.3	1.6	1.5	1.6	1.4	1.4	1.6	2.1	3.2	3.4	3.3	2.3	1.9	3.5	3.0	3.1	2.8	3.0	3.3	3.2	2.9	2.8	2.9	2.7	2.8	3.0	3.0	2.9	2.5	2.1	1.7	1.8	2.0	1.8
3.1	3.5	4.5	5.1	3.8	3.2	3.2	3.0	2.7	3.3	3.3	3.9	3.7	3.1	3.4	4.5	5.0	4.5	4.8	4.7	4.3	3.6	3.6	2.9	2.7	2.9	3.4	3.7	3.2	2.6	2.9	2.8	2.6	2.7	3.2	3.2
4.3	5.2	5.4	5.3	5.2	5.3	5.3	4.2	3.9	4.7	4.7	4.5	4.9	5.0	5.5	5.3	5.6	6.3	6.3	5.6	4.8	4.5	3.5	3.8	4.0	4.6	5.0	4.5	4.2	4.1	4.0	3.8	3.3	3.1	3.7	3.4
7.4	7.6	6.7	5.9	5.2	5.8	6.2	6.2	6.2	6.3	5.6	6.0	7.9	7.0	6.1	5.9	6.1	6.2	6.2	5.3	4.4	3.1	3.8	4.1	5.2	6.4	6.4	5.2	5.2	5.3	5.1	5.6	5.8	5.7	7.0	7.2
8.1	6.0	4.3	4.8	5.5	5.0	5.2	6.7	7.2	4.9	6.4	7.6	8.4	5.6	4.4	4.9	6.2	6.3	6.1	3.2	2.2	3.0	3.5	4.1	3.9	5.3	5.4	6.3	6.6	5.9	6.2	6.8	8.2	8.3	7.7	7.1
5.1	5.2	2.8	5.1	6.6	4.0	4.3	5.6	7.8	7.5	7.3	8.2	6.2	6.1	7.1	6.2	5.5	5.7	5.0	1.5	1.6	1.1	1.9	1.5	2.3	3.3	5.0	7.3	5.1	4.8	5.5	6.5	4.2	2.8	3.7	5.1
6.3	5.8	5.2	7.5	7.1	8.4	9.2	8.2	9.1	9.3	7.2	8.8	8.5	9.2	9.3	7.3	7.0	5.7	3.5	4.6	3.9	5.3	2.6	1.2	3.5	6.1	8.8	9.4	8.3	6.1	8.3	6.8	6.9	8.4	7.3	6.1
10.1	9.6	8.0	8.4	7.1	6.1	6.4	6.6	7.3	6.3	11.4	8.9	5.8	6.8	9.4	10.3	9.1	5.1	7.9	9.2	9.6	7.8	4.8	3.3	5.6	8.5	9.1	9.9	11.4	10.2	9.1	9.4	9.1	11.0	10.6	10.6
5.0	6.2	2.7	1.9	.8	.6	.6	.6	.6	1.1	9.1	10.1	8.7	6.1	3.0	2.1	1.4	.7	2.4	7.2	9.7	5.2	1.2	2.4	5.8	8.6	11.0	11.6	10.7	7.8	4.7	7.9	8.8	10.2	8.6	7.2
6.3	8.0	8.2	7.9	5.4	2.6	1.8	1.4	1.2	.8	6.8	10.7	10.2	8.7	6.0	5.1	2.7	1.3	1.0	4.6	7.3	4.0	3.6	2.0	2.0	3.7	7.2	6.5	2.8	3.0	3.1	4.3	3.2	5.9	6.2	5.4
5.9	6.7	8.2	8.8	9.9	6.7	4.7	4.1	2.9	1.9	2.1	8.3	10.3	9.8	7.5	7.2	7.3	3.6	3.3	5.3	9.3	7.2	4.3	4.3	3.2	2.3	2.8	2.2	2.3	3.9	5.7	6.6	6.1	5.0	5.5	6.0
7.8	5.6	4.3	5.5	7.3	6.5	5.9	6.8	5.5	4.3	3.8	7.9	10.6	7.7	6.8	6.5	6.4	5.1	4.6	6.3	7.4	7.0	6.5	5.9	5.0	4.1	3.6	3.1	2.8	2.9	4.4	4.9	5.5	5.5	5.9	6.5
5.3	4.1	3.5	4.0	4.0	5.2	5.0	5.0	5.4	4.5	4.8	5.8	6.0	6.4	5.7	5.6	5.3	4.5	4.6	4.2	4.8	5.5	5.3	5.4	4.8	5.1	4.8	4.2	4.0	3.8	3.5	3.7	3.5	4.3	5.0	5.6
4.4	4.0	3.8	3.7	3.5	3.8	4.4	4.5	5.2	5.2	5.6	6.7	6.3	5.4	5.0	5.2	4.2	4.5	4.1	4.2	4.3	4.1	4.3	4.5	4.5	5.1	4.6	3.7	4.5	3.8	3.3	3.1	3.1	3.2	3.7	4.2
3.7	3.5	3.5	3.4	3.4	3.4	3.7	3.7	4.5	5.0	5.2	6.2	7.4	6.6	5.2	5.1	4.4	4.3	4.6	4.5	3.7	3.4	3.2	3.4	3.6	4.0	4.0	3.3	3.3	2.8	2.8	2.6	2.8	3.0	3.3	3.4
3.2	3.3	3.4	3.9	3.9	4.6	4.8	4.9	5.1	5.0	5.7	5.8	5.4	4.4	3.6	3.7	4.2	3.8	3.2	2.9	2.6	2.1	1.2	1.3	2.3	2.4	1.6	1.3	1.2	1.1	1.0	1.0	1.1	1.5	2.6	2.8
2.6	2.8	3.7	4.3	4.6	4.4	4.3	3.8	3.3	3.4	3.3	3.1	2.8	2.8	2.9	2.9	2.5	2.2	2.0	1.8	1.5	1.2	1.0	1.0	1.2	1.2	1.2	1.2	1.3	1.3	1.2	1.5	2.0	2.7	2.9	3.0

Figure 52. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: AMSUA-7 (300 hPa)

NOAA16, using all observations

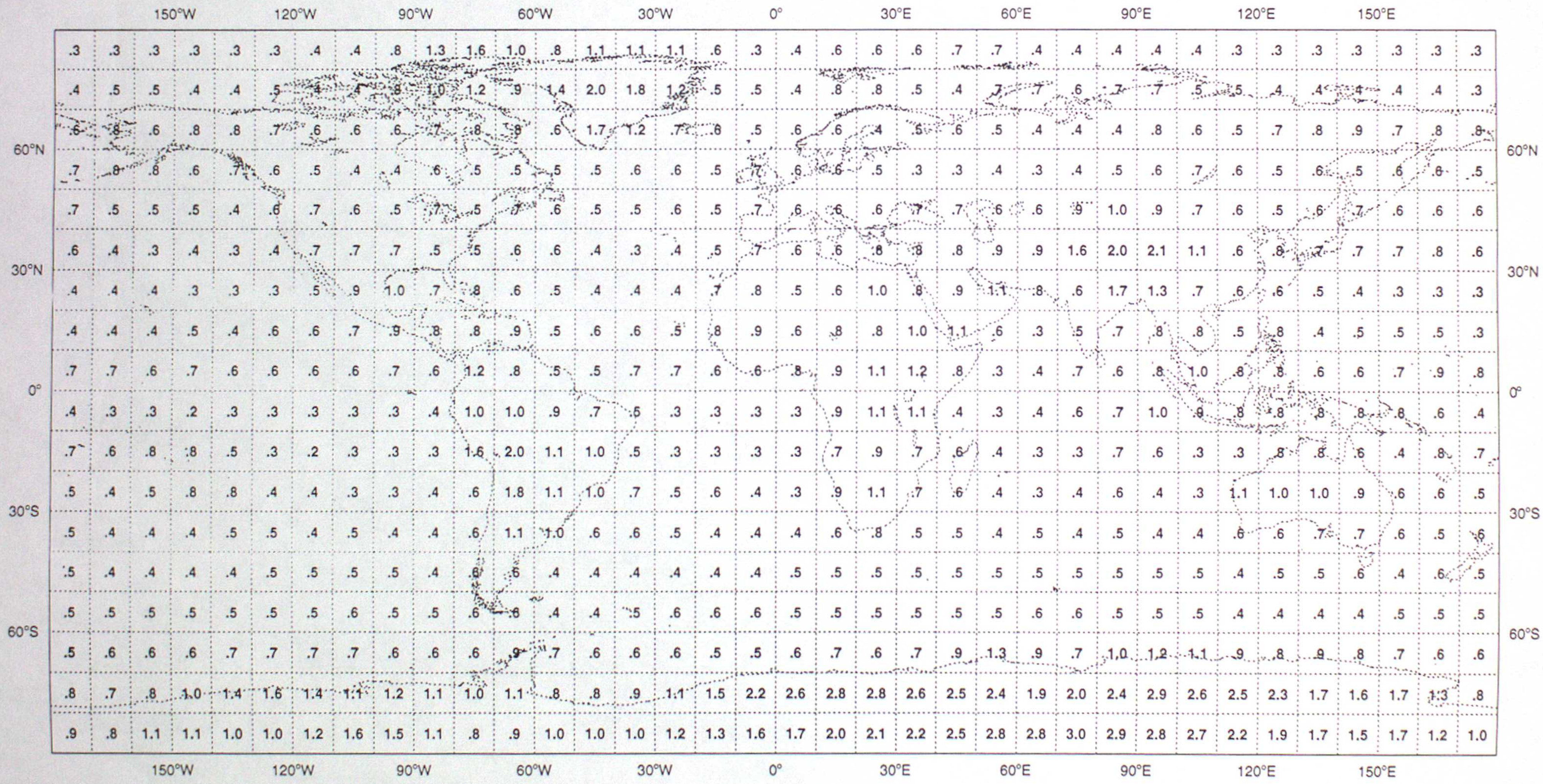

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .3 .3 .4 .4 .8 1.3 1.6 1.0 .8 1.1 1.1 1.1 .6 .3 .4 .6 .6 .6 .7 .7 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3
.4 .5 .5 .4 .4 .5 .4 .4 .8 1.0 1.2 .9 1.4 2.0 1.8 1.2 .5 .5 .4 .8 .8 .5 .4 .7 .7 .6 .7 .7 .5 .5 .4 .4 .4 .4 .4 .3
.6 .8 .6 .8 .8 .7 .6 .6 .6 .7 .8 .8 .6 1.7 1.2 .7 .8 .5 .6 .6 .4 .5 .6 .5 .4 .4 .4 .8 .6 .5 .7 .8 .9 .7 .8 .8
.7 .8 .8 .6 .7 .6 .5 .4 .4 .6 .5 .5 .5 .5 .6 .6 .5 .7 .6 .6 .5 .3 .3 .4 .3 .4 .5 .6 .7 .6 .5 .6 .5 .6 .6 .5
.7 .5 .5 .5 .4 .6 .7 .6 .5 .7 .5 .7 .6 .5 .5 .6 .5 .7 .6 .6 .6 .7 .7 .6 .6 .9 1.0 .9 .7 .6 .5 .6 .7 .6 .6 .6
.6 .4 .3 .4 .3 .4 .7 .7 .7 .5 .5 .6 .6 .4 .3 .4 .5 .7 .6 .6 .8 .8 .8 .9 .9 1.6 2.0 2.1 1.1 .6 .8 .7 .7 .7 .8 .6
.4 .4 .4 .3 .3 .3 .5 .9 1.0 .7 .8 .6 .5 .4 .4 .4 .7 .8 .5 .6 1.0 .8 .9 1.1 .8 .6 1.7 1.3 .7 .6 .6 .5 .4 .3 .3 .3
.4 .4 .4 .5 .4 .6 .6 .7 .9 .8 .8 .9 .5 .6 .6 .5 .8 .9 .6 .8 .8 1.0 1.1 .6 .3 .5 .7 .8 .8 .5 .8 .4 .5 .5 .5 .3
.7 .7 .6 .7 .6 .6 .6 .6 .7 .6 1.2 .8 .5 .5 .7 .7 .6 .6 .8 .9 1.1 1.2 .8 .3 .4 .7 .6 .8 1.0 .8 .8 .6 .6 .7 .9 .8
.4 .3 .3 .2 .3 .3 .3 .3 .3 .4 1.0 1.0 .9 .7 .5 .3 .3 .3 .3 .9 1.1 1.1 .4 .3 .4 .6 .7 1.0 .9 .8 .8 .8 .8 .8 .6 .4
.7 .6 .8 .8 .5 .3 .2 .3 .3 .3 1.6 2.0 1.1 1.0 .5 .3 .3 .3 .3 .7 .9 .7 .6 .4 .3 .3 .7 .6 .3 .3 .8 .8 .6 .4 .8 .7
.5 .4 .5 .8 .8 .4 .4 .3 .3 .4 .6 1.8 1.1 1.0 .7 .5 .6 .4 .3 .9 1.1 .7 .6 .4 .3 .4 .6 .4 .3 1.1 1.0 1.0 .9 .6 .6 .5
.5 .4 .4 .4 .5 .5 .4 .5 .4 .4 .6 1.1 1.0 .6 .6 .5 .4 .4 .4 .6 .8 .5 .5 .4 .5 .4 .5 .4 .4 .6 .6 .7 .7 .6 .5 .6
.5 .4 .4 .4 .4 .5 .5 .5 .5 .4 .6 .6 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .6 .4 .6 .5
.5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .6 .6 .4 .4 .5 .6 .6 .6 .5 .5 .5 .5 .5 .5 .6 .6 .5 .5 .5 .4 .4 .4 .4 .5 .5 .5
.5 .6 .6 .6 .7 .7 .7 .7 .6 .6 .6 .9 .7 .6 .6 .6 .5 .5 .6 .7 .6 .7 .9 1.3 .9 .7 1.0 1.2 1.1 .9 .8 .9 .8 .7 .6 .6
.8 .7 .8 1.0 1.4 1.6 1.4 1.1 1.2 1.1 1.0 1.1 .8 .8 .9 1.1 1.5 2.2 2.6 2.8 2.8 2.6 2.5 2.4 1.9 2.0 2.4 2.9 2.6 2.5 2.3 1.7 1.6 1.7 1.3 .8
.9 .8 1.1 1.1 1.0 1.0 1.2 1.6 1.5 1.1 .8 .9 1.0 1.0 1.0 1.2 1.3 1.6 1.7 2.0 2.1 2.2 2.5 2.8 2.8 3.0 2.9 2.8 2.7 2.2 1.9 1.7 1.5 1.7 1.2 1.0
150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E

Figure 53. ATOVS MEAN O-B brightness temperature differences (deg C). OCTOBER 2001

Channel: AMSUA-9 (100 hPa)

NOAA16, using all observations

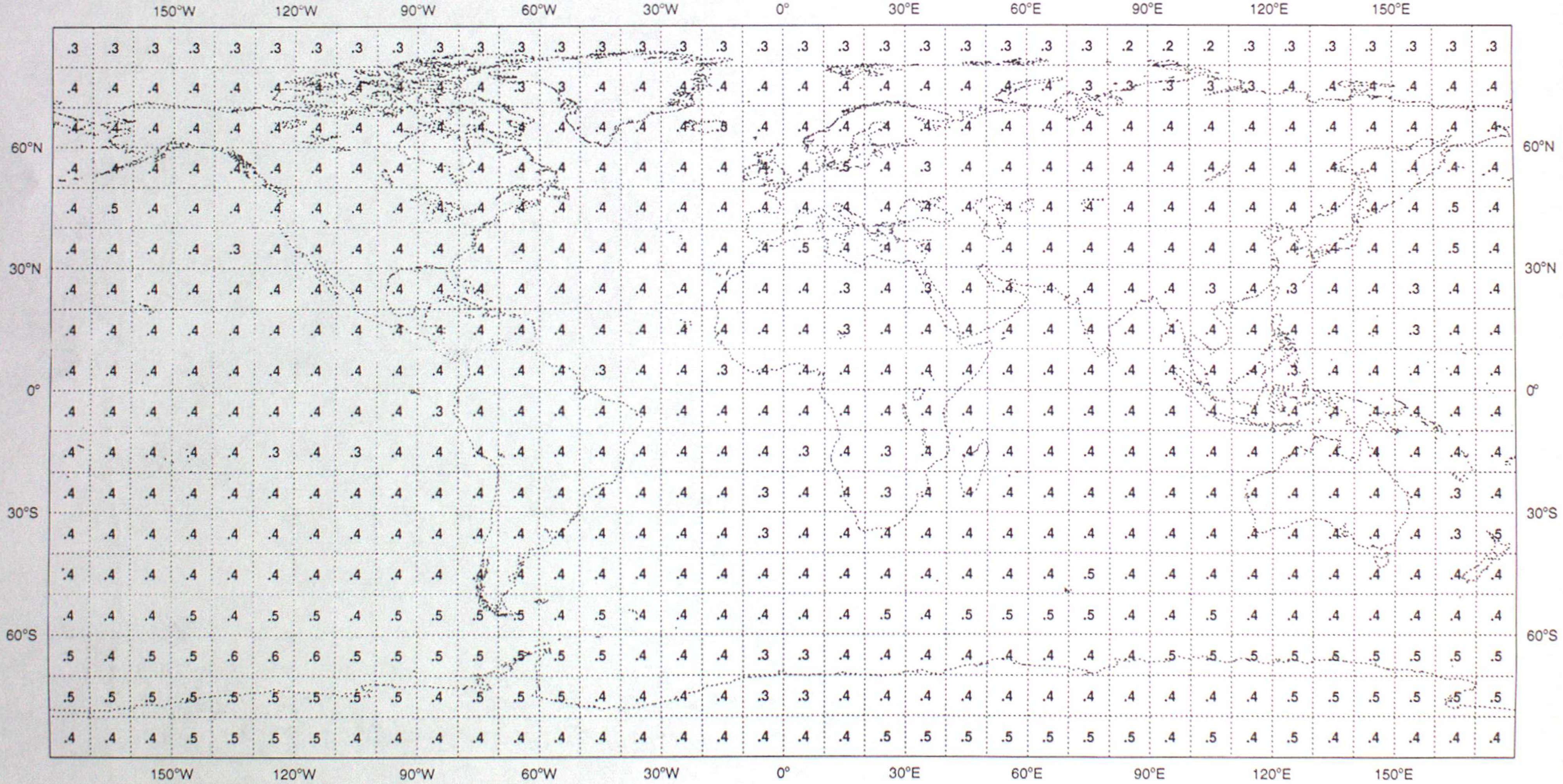
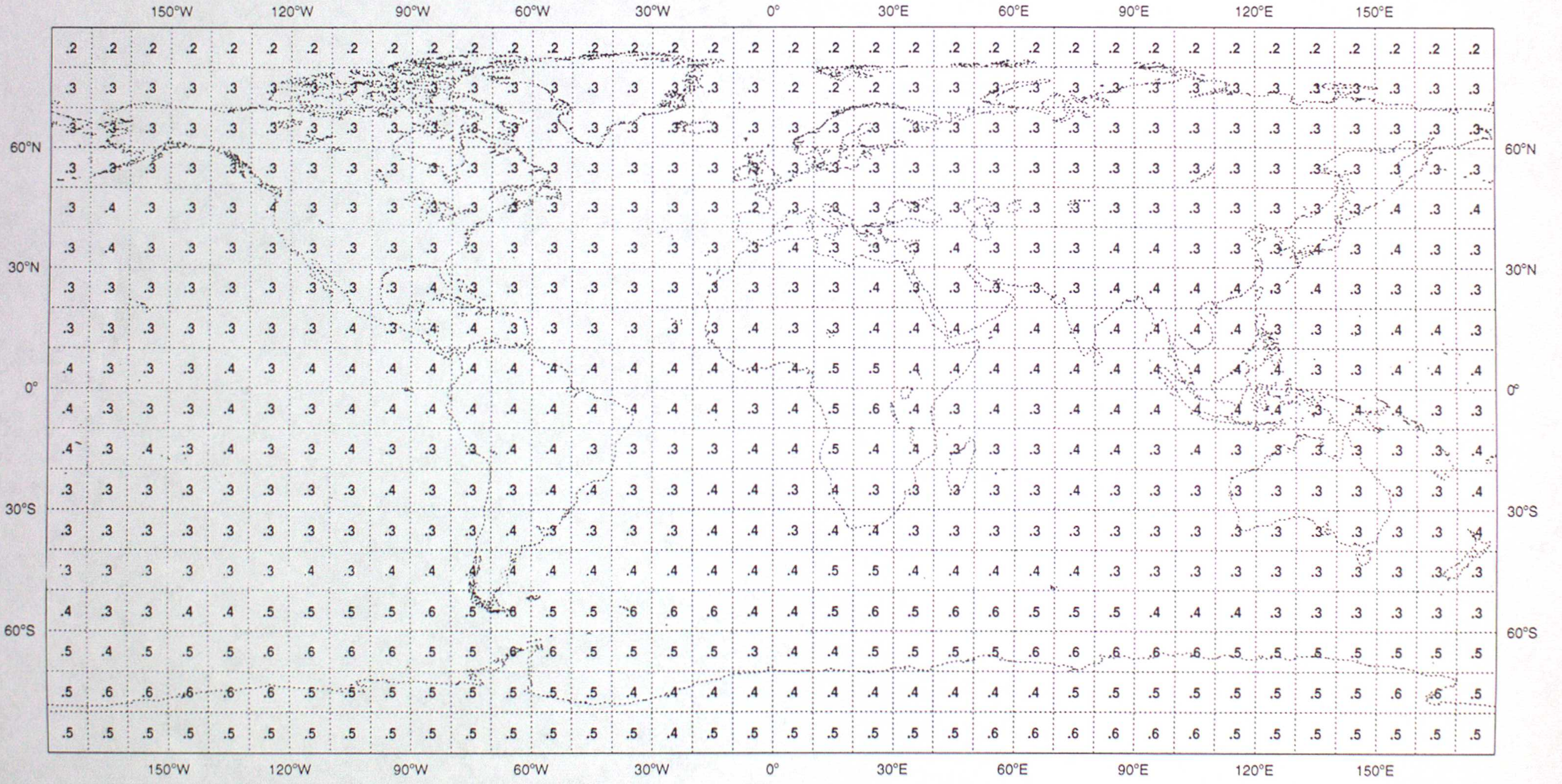

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .3 .3 .3 .3 .3 .3 .3
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4
.4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .3 .4 .4 .4 .4 .4 .4 .3 .4 .3 .4 .4 .3 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .3 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .5
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .5 .4 .5 .5 .4 .5 .5 .5 .5 .4 .5 .4 .4 .4 .4 .4 .4 .5 .4 .5 .5 .5 .5 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4
.5 .4 .5 .5 .6 .6 .6 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5
.4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4 .5 .4 .4 .4 .4 .4

Figure 54. ATOVS SD O-B brightness temperature differences (deg C). OCTOBER 2001
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations



.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.4	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.4
.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.4	.3	.3	.3	.4	.4	.3	.3	.3	.4	.3	.4	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.4	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.4	.3	.4	.4	.3	.3	.3	.3	.3	.3	.4	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.4	.4	.3
.4	.3	.3	.3	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.4
.4	.3	.3	.3	.4	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.5	.6	.4	.3	.4	.3	.4	.4	.4	.4	.4	.4	.3	.4	.4	.3	.3
.4	.3	.4	.3	.4	.3	.3	.4	.3	.3	.3	.4	.4	.3	.3	.3	.3	.4	.4	.5	.4	.4	.3	.3	.3	.4	.4	.3	.4	.3	.3	.3	.3	.3	.3	.4
.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.4	.4	.3	.3	.4	.4	.3	.4	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.4	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4
.3	.3	.3	.3	.3	.3	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.3	.3	.4	.4	.5	.5	.5	.5	.6	.5	.6	.5	.5	.6	.6	.6	.4	.4	.5	.6	.5	.6	.6	.5	.5	.5	.4	.4	.4	.3	.3	.3	.3	.3	.3
.5	.4	.5	.5	.5	.6	.6	.6	.6	.5	.5	.6	.6	.5	.5	.5	.5	.3	.4	.4	.5	.5	.5	.5	.6	.6	.6	.6	.6	.5	.5	.5	.5	.5	.5	.5
.5	.6	.6	.6	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.5
.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6	.6	.6	.5	.5	.5	.5	.5	.5	.5

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored
:Mean sea-level pressure (hPa)
:Wind speed (m s^{-1})
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the wind observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 m s^{-1} (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
14550	62.4	-31.1	ALL	P	SUR	1	0	0	0.0	-0.6	0.6
147949	52.2	-25.3	ALL	P	SUR	1	0	0	0.0	0.5	0.5
26602	62.7	-21.5	ALL	P	SUR	1	0	0	0.0	-0.5	0.5
32519	43.7	-14.5	ALL	P	SUR	1	0	0	0.0	0.4	0.4
35581	56.9	-28.8	ALL	P	SUR	1	0	0	0.0	0.0	0.0
36776	57.0	-20.2	ALL	P	SUR	1	0	0	0.0	-0.2	0.2
41505	25.6	-66.7	ALL	P	SUR	29	0	0	1.0	-0.2	1.0
41523	32.7	-48.8	ALL	P	SUR	376	0	0	0.6	-0.1	0.6
41552	20.7	-43.1	ALL	P	SUR	630	0	0	0.5	-0.9	1.0
41553	17.7	-60.6	ALL	P	SUR	599	0	0	0.5	-0.2	0.6
41554	19.7	-63.5	ALL	P	SUR	623	0	0	0.6	-0.3	0.7
41556	15.2	-56.3	ALL	P	SUR	610	0	0	0.5	-0.2	0.6
41557	19.4	-55.6	ALL	P	SUR	616	0	0	0.5	-0.1	0.5
41559	16.3	-53.2	ALL	P	SUR	604	0	0	0.5	-0.3	0.6
41560	14.6	-48.5	ALL	P	SUR	571	0	0	0.6	-0.4	0.7
41561	18.1	-51.1	ALL	P	SUR	584	0	0	0.5	-0.5	0.7
41563	12.6	-37.2	ALL	P	SUR	604	0	0	0.5	-0.4	0.6
41639	26.1	-59.4	ALL	P	SUR	242	0	0	0.9	0.9	1.3
41642	22.6	-66.7	ALL	P	SUR	274	0	0	0.7	0.1	0.7
41644	31.5	-41.5	ALL	P	SUR	57	0	0	0.5	-0.1	0.5
41645	27.1	-76.6	ALL	P	SUR	621	0	0	0.6	0.8	1.0
41646	26.5	-76.4	ALL	P	SUR	593	0	0	0.6	0.5	0.8
41647	25.5	-67.7	ALL	P	SUR	611	0	0	0.6	0.1	0.7
41648	22.7	-71.5	ALL	P	SUR	635	0	0	0.6	0.5	0.8
41650	23.2	-71.6	ALL	P	SUR	619	0	0	0.5	0.9	1.0
41651	23.7	-74.6	ALL	P	SUR	629	0	0	0.6	0.6	0.9
41652	28.6	-65.6	ALL	P	SUR	692	0	0	0.7	0.0	0.7
44541	61.3	-22.0	ALL	P	SUR	1	0	0	0.0	0.2	0.2
44546	61.4	-24.0	ALL	P	SUR	1299	0	0	1.0	-0.7	1.3
44548	51.5	-17.6	ALL	P	SUR	764	0	0	1.1	0.0	1.1
44549	51.5	-38.9	ALL	P	SUR	1380	0	0	1.1	-0.2	1.1
44550	50.1	-35.8	ALL	P	SUR	1491	2	0	1.3	-0.6	1.5
44602	32.5	-24.8	ALL	P	SUR	1	0	0	0.0	-0.6	0.6
44612	32.0	-24.8	ALL	P	SUR	888	0	0	0.5	-0.4	0.7
44613	31.2	-20.7	ALL	P	SUR	676	0	0	0.5	0.0	0.5
44616	45.5	-40.2	ALL	P	SUR	1050	4	0	1.4	0.3	1.5
44621	54.0	-37.5	ALL	P	SUR	1264	0	0	1.1	0.1	1.1
44623	34.2	-23.2	ALL	P	SUR	835	0	0	0.5	0.0	0.5
44624	44.1	-43.4	ALL	P	SUR	679	0	0	1.3	-0.1	1.3
44625	45.6	-56.2	ALL	P	SUR	1132	0	0	0.8	-0.5	0.9
44627	45.3	-40.2	ALL	P	SUR	1003	3	0	1.3	-0.8	1.6
44721	36.9	-31.4	ALL	P	SUR	912	0	0	0.8	-0.1	0.8
44722	35.6	-34.3	ALL	P	SUR	754	56	7	0.8	-0.6	1.0
44723	48.9	-46.8	ALL	P	SUR	1142	0	0	0.8	-0.3	0.9
44726	57.8	-37.2	ALL	P	SUR	1278	7	1	1.3	0.0	1.3
44728	51.7	-46.7	ALL	P	SUR	197	0	0	1.7	-0.6	1.8
44729	40.7	-13.6	ALL	P	SUR	855	0	0	1.6	0.1	1.6
44730	53.6	-42.7	ALL	P	SUR	198	0	0	1.4	-0.2	1.4
44761	57.9	-11.3	ALL	P	SUR	1186	0	0	1.1	-0.5	1.2
44765	34.3	-28.4	ALL	P	SUR	543	6	1	0.8	-0.1	0.8
44768	58.2	-10.9	ALL	P	SUR	1	0	0	0.0	-0.7	0.7
44771	58.0	-24.5	ALL	P	SUR	1140	1	0	1.0	0.1	1.0
44775	31.8	-37.6	ALL	P	SUR	997	0	0	0.7	-0.4	0.8
44776	56.4	-21.2	ALL	P	SUR	1261	0	0	1.0	-0.7	1.2
44778	43.0	-21.0	ALL	P	SUR	950	0	0	1.5	-0.3	1.5
44801	41.1	-66.6	ALL	P	SUR	1	0	0	0.0	0.2	0.2
44805	43.2	-69.2	ALL	P	SUR	1	0	0	0.0	-0.7	0.7
44825	40.3	-73.2	ALL	P	SUR	1	0	0	0.0	-1.5	1.5
44851	46.4	-53.4	ALL	P	SUR	1	0	0	0.0	-0.6	0.6
44871	57.5	-23.6	ALL	P	SUR	1	0	0	0.0	0.0	0.0

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
45805	41.7	-82.4	ALL	P	SUR	1	0	0	0.0	0.2	0.2
46625	45.6	-56.6	ALL	P	SUR	1	0	0	0.0	-0.7	0.7
54549	62.8	-32.6	ALL	P	SUR	2	0	0	0.0	-1.4	1.4
62501	33.0	-18.2	ALL	P	SUR	766	1	0	0.7	0.3	0.7
62503	32.4	-15.1	ALL	P	SUR	851	0	0	0.6	-0.5	0.8
62504	37.5	-21.6	ALL	P	SUR	859	0	0	0.7	-0.3	0.8
62505	31.7	-17.3	ALL	P	SUR	754	0	0	0.6	-0.4	0.7
62510	42.1	-18.0	ALL	P	SUR	255	5	2	5.1	-1.8	5.5
62511	39.1	-25.7	ALL	P	SUR	316	0	0	0.7	-0.5	0.9
62512	40.0	-17.4	ALL	P	SUR	864	0	0	1.3	-0.8	1.5
62514	58.0	-11.5	ALL	P	SUR	1024	0	0	1.2	-0.7	1.3
62516	46.9	-15.1	ALL	P	SUR	923	4	0	1.7	-0.3	1.7
62518	42.4	-15.8	ALL	P	SUR	912	3	0	1.3	-0.3	1.4
62519	44.1	-12.4	ALL	P	SUR	1004	2	0	2.2	-0.5	2.2
62529	42.1	-13.5	ALL	P	SUR	1	0	0	0.0	2.4	2.4
62596	59.7	-38.2	ALL	P	SUR	1241	1	0	1.1	-0.3	1.2
62705	54.7	-12.6	ALL	P	SUR	1	0	0	0.0	-1.2	1.2
62706	57.0	-9.9	ALL	P	SUR	1	0	0	0.0	-0.3	0.3
62786	53.5	-3.6	ALL	P	SUR	1	0	0	0.0	0.1	0.1
62801	45.2	-5.0	ALL	P	SUR	1	0	0	0.0	-0.1	0.1
62823	51.4	-7.9	ALL	P	SUR	1	0	0	0.0	-0.3	0.3
62829	48.7	-12.4	ALL	P	SUR	1	0	0	0.0	0.1	0.1
62881	51.0	-13.3	ALL	P	SUR	1	0	0	0.0	1.8	1.8
62912	39.9	-16.9	ALL	P	SUR	1	0	0	0.0	-1.8	1.8
64549	62.5	-35.9	ALL	P	SUR	1490	11	1	1.8	-0.4	1.8
64550	62.9	-31.4	ALL	P	SUR	1339	9	1	1.7	-0.7	1.9
64845	57.1	-11.4	ALL	P	SUR	1	0	0	0.0	3.9	3.9
65516	60.3	-34.4	ALL	P	SUR	2115	3	0	1.0	-0.4	1.0
65581	57.4	-31.3	ALL	P	SUR	1353	28	2	1.3	-0.6	1.4
65587	57.9	-27.4	ALL	P	SUR	1	0	0	0.0	-2.5	2.5
65595	58.4	-31.6	ALL	P	SUR	1279	6	0	1.0	-0.1	1.0
65602	62.2	-23.8	ALL	P	SUR	1754	13	1	1.1	-0.5	1.2
65662	60.4	-35.1	ALL	P	SUR	1495	9	1	1.3	-0.3	1.3
65981	57.6	-27.8	ALL	P	SUR	2	0	0	0.8	-0.1	0.8
69516	60.1	-34.2	ALL	P	SUR	1	0	0	0.0	-0.4	0.4
WIND SPEED											
049364	26.3	-78.5	ALL	SPEED	SUR	1	0	0	0.0	-0.8	0.8
147949	52.2	-25.3	ALL	SPEED	SUR	1	0	0	0.0	-1.9	1.9
41552	20.7	-43.1	ALL	SPEED	SUR	628	0	0	1.5	-0.5	1.6
41553	17.7	-60.6	ALL	SPEED	SUR	594	0	0	1.5	0.1	1.5
41554	19.7	-63.5	ALL	SPEED	SUR	618	0	0	2.0	-0.1	2.0
41556	15.2	-56.3	ALL	SPEED	SUR	600	2	0	1.9	0.8	2.0
41557	19.4	-55.6	ALL	SPEED	SUR	606	0	0	1.6	-0.6	1.7
41559	16.3	-53.2	ALL	SPEED	SUR	597	1	0	1.6	0.6	1.7
41560	14.6	-48.5	ALL	SPEED	SUR	563	1	0	2.2	0.5	2.3
41561	18.1	-51.1	ALL	SPEED	SUR	577	0	0	1.2	-0.4	1.3
41563	12.6	-37.2	ALL	SPEED	SUR	594	2	0	2.7	0.8	2.8
41642	22.6	-66.7	ALL	SPEED	SUR	9	0	0	1.7	-4.8	5.1
41645	27.1	-76.6	ALL	SPEED	SUR	611	2	0	2.5	0.9	2.7
41646	26.5	-76.4	ALL	SPEED	SUR	584	3	1	2.8	0.9	3.0
41647	25.5	-67.7	ALL	SPEED	SUR	600	2	0	2.4	0.1	2.4
41648	22.7	-71.5	ALL	SPEED	SUR	632	7	1	2.4	0.4	2.5
41650	23.2	-71.6	ALL	SPEED	SUR	614	4	1	2.4	-0.2	2.4
41651	23.7	-74.6	ALL	SPEED	SUR	625	29	5	7.9	1.7	8.1
41652	28.6	-65.6	ALL	SPEED	SUR	688	1	0	3.0	0.5	3.1
44616	45.5	-40.2	ALL	SPEED	SUR	1	0	0	0.0	18.1	18.1
44801	41.1	-66.6	ALL	SPEED	SUR	1	0	0	0.0	1.4	1.4
44805	43.2	-69.2	ALL	SPEED	SUR	1	0	0	0.0	-1.1	1.1
44825	40.3	-73.2	ALL	SPEED	SUR	1	0	0	0.0	0.6	0.6
44851	46.4	-53.4	ALL	SPEED	SUR	1	0	0	0.0	-4.0	4.0
62501	33.0	-18.2	ALL	SPEED	SUR	1	1	100			

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND SPEED											
62556	37.5	-17.9	ALL	SPEED	SUR	118	0	0	2.9	-1.3	3.1
62567	36.8	-18.8	ALL	SPEED	SUR	132	0	0	2.8	-1.4	3.1
62572	40.2	-14.7	ALL	SPEED	SUR	456	0	0	1.5	0.2	1.5
62705	54.7	-12.6	ALL	SPEED	SUR	2	0	0	2.0	-2.0	2.8
62801	45.2	-5.0	ALL	SPEED	SUR	1	0	0	0.0	0.2	0.2
62823	51.4	-7.9	ALL	SPEED	SUR	1	0	0	0.0	-5.3	5.3
62829	48.7	-12.4	ALL	SPEED	SUR	1	0	0	0.0	-0.1	0.1
62881	51.0	-13.3	ALL	SPEED	SUR	1	0	0	0.0	-1.1	1.1
62891	53.5	-5.4	ALL	SPEED	SUR	1	0	0	0.0	-0.4	0.4
64845	57.1	-11.4	ALL	SPEED	SUR	1	1	100			
WIND DIRECTION											
147949	52.2	-25.3	ALL	DIRN.	SUR	1	0	0	0.0	18.6	18.6
41552	20.7	-43.1	ALL	DIRN.	SUR	400	0	0	16.8	-0.3	16.8
41553	17.7	-60.6	ALL	DIRN.	SUR	539	0	0	13.2	8.1	15.4
41554	19.7	-63.5	ALL	DIRN.	SUR	525	0	0	15.6	-8.8	17.9
41556	15.2	-56.3	ALL	DIRN.	SUR	596	2	0	16.3	5.4	17.1
41557	19.4	-55.6	ALL	DIRN.	SUR	497	0	0	14.4	-6.0	15.6
41559	16.3	-53.2	ALL	DIRN.	SUR	578	1	0	14.9	-1.3	15.0
41560	14.6	-48.5	ALL	DIRN.	SUR	528	1	0	14.8	13.9	20.3
41561	18.1	-51.1	ALL	DIRN.	SUR	517	0	0	13.7	2.2	13.9
41563	12.6	-37.2	ALL	DIRN.	SUR	481	2	0	17.7	7.8	19.4
41642	22.6	-66.7	ALL	DIRN.	SUR	1	0	0	0.0	54.7	54.7
41645	27.1	-76.6	ALL	DIRN.	SUR	415	2	0	17.4	9.9	20.0
41646	26.5	-76.4	ALL	DIRN.	SUR	400	3	1	17.3	-2.5	17.5
41647	25.5	-67.7	ALL	DIRN.	SUR	258	2	1	23.8	1.7	23.9
41648	22.7	-71.5	ALL	DIRN.	SUR	523	7	1	21.1	39.9	45.1
41650	23.2	-71.6	ALL	DIRN.	SUR	463	4	1	23.1	3.3	23.3
41651	23.7	-74.6	ALL	DIRN.	SUR	402	29	7	22.4	11.2	25.1
41652	28.6	-65.6	ALL	DIRN.	SUR	299	1	0	21.3	-7.5	22.6
44616	45.5	-40.2	ALL	DIRN.	SUR	1	0	0	0.0	65.6	65.6
44825	40.3	-73.2	ALL	DIRN.	SUR	1	0	0	0.0	-5.3	5.3
44851	46.4	-53.4	ALL	DIRN.	SUR	1	0	0	0.0	-16.2	16.2
62501	33.0	-18.2	ALL	DIRN.	SUR	1	1	100			
62556	37.5	-17.9	ALL	DIRN.	SUR	84	0	0	14.7	6.5	16.1
62567	36.8	-18.8	ALL	DIRN.	SUR	94	0	0	12.6	-4.6	13.4
62572	40.2	-14.7	ALL	DIRN.	SUR	352	0	0	13.4	-0.3	13.4
62705	54.7	-12.6	ALL	DIRN.	SUR	2	0	0	7.5	-9.4	12.1
62801	45.2	-5.0	ALL	DIRN.	SUR	1	0	0	0.0	-18.3	18.3
62823	51.4	-7.9	ALL	DIRN.	SUR	1	0	0	0.0	2.0	2.0
62829	48.7	-12.4	ALL	DIRN.	SUR	1	0	0	0.0	-4.0	4.0
62881	51.0	-13.3	ALL	DIRN.	SUR	1	0	0	0.0	20.6	20.6
62891	53.5	-5.4	ALL	DIRN.	SUR	1	0	0	0.0	-0.4	0.4
64845	57.1	-11.4	ALL	DIRN.	SUR	1	1	100			

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	1120	2	8	2.1	0.4	1110	0	6	0	8.2	0.2
ACA	1272	1	7	2.0	-0.1	1293	0	5	0	7.4	0.7
AEA	190	1	6	1.4	0.5	190	2	12	0	9.3	-0.2
AEL	249	5	17	2.4	-0.7	252	1	11	0	10.5	-0.1
AFL	382	1	3	1.8	0.6	382	1	4	0	8.8	1.0
AFR	688	0	7	1.7	0.1	707	0	8	0	8.1	0.6
AIH	185	0	4	1.8	-0.1	183	1	3	0	6.7	0.6
AJM	138	1	5	1.7	0.5	137	0	3	0	6.0	1.2
ALM	22	0	9	1.3	0.8	23	0	13	0	13.6	2.9
AMM	87	0	2	1.7	0.8	90	1	10	0	12.8	0.2
AMX	209	2	7	1.9	0.3	210	2	10	0	12.5	-0.2
AVA	87	2	3	1.8	0.6	88	2	5	0	8.1	0.7
AZA	360	9	24	4.2	2.2	361	1	7	0	11.1	0.9
BAF	29	0	3	1.2	-0.5	29	0	7	0	11.8	0.7
BAL	116	0	9	1.3	-0.1	117	0	9	0	6.3	0.7
BAW	528	0	8	1.8	-0.4	528	0	9	0	6.7	0.8
BLX	23	0	4	1.2	-0.2	22	0	9	0	9.1	0.4
BWA	72	0	58	1.8	1.1	73	1	10	0	11.4	0.6
CFC	41	2	24	3.6	1.1	44	0	11	0	8.1	2.8
CFG	455	0	4	1.7	-0.5	464	1	5	0	7.8	1.3
CGB	26	0	0	1.5	0.0	26	0	0	0	6.1	0.3
CLX	238	0	2	1.5	-0.4	236	0	3	0	6.4	0.3
CMM	350	0	3	1.5	-0.1	349	0	3	0	7.4	0.9
COA	183	1	14	1.7	0.0	185	0	15	0	9.4	2.1
CRL	149	0	1	1.5	0.4	152	0	3	0	8.6	1.0
CUB	89	8	10	2.1	1.1	89	0	7	0	11.5	2.0
DAL	1223	0	19	1.8	-0.3	1232	0	21	0	9.1	0.6
DCE	40	0	5	1.2	0.3	40	3	10	0	6.4	0.7
DLH	914	0	8	1.6	0.1	915	0	8	0	7.7	0.5
EIA	94	2	17	2.0	-0.3	94	1	53	0	21.6	6.4
ELY	96	1	2	1.6	-0.3	101	3	3	0	6.7	1.0
ETH	30	0	3	1.1	0.2	31	0	6	0	8.5	-0.8
EWW	84	0	10	1.8	0.3	84	2	17	0	13.1	4.2
FDX	530	0	29	1.8	0.4	559	1	30	0	9.3	1.0
FIN	308	0	4	1.7	0.2	298	0	4	0	7.7	0.9
GAF	35	0	11	2.4	-0.1	35	0	9	0	11.9	1.4
GCO	110	1	3	1.7	-0.7	112	0	100	0	17.3	4.8
GRL	31	0	0	1.1	0.4	31	0	0	0	4.6	0.9
GTI	162	1	9	2.1	0.0	166	0	10	0	9.5	1.1
IBE	1263	0	8	1.8	0.8	1257	1	11	0	10.0	0.2
ICE	989	0	2	1.5	-0.1	971	1	4	0	7.2	1.3
IWD	48	0	6	0.9	-0.3	48	0	8	0	8.1	-0.4
JKK	160	0	9	1.2	-0.1	153	0	10	0	6.3	0.6
JMC	36	0	3	1.4	-0.5	37	0	3	0	5.5	1.6
KLM	1041	0	6	1.5	-0.1	1052	0	7	0	7.2	0.8
LDA	51	0	0	1.0	0.2	51	0	2	0	8.7	0.9
LDI	176	11	36	4.9	2.9	181	1	8	0	11.2	0.5
LIB	232	2	11	1.7	0.7	237	1	11	0	8.5	1.9
LOT	109	1	5	2.2	-1.2	106	0	4	0	6.5	-0.3
LTU	537	1	8	1.6	-0.2	531	0	8	0	7.4	0.7
MON	73	0	3	2.0	0.5	70	0	3	0	7.5	1.1
MPD	168	0	1	1.3	0.0	167	1	3	0	9.0	0.5
MPH	412	0	1	1.6	-0.6	418	0	4	0	10.3	-0.2
NCA	27	0	4	2.0	-0.3	27	4	4	0	6.2	0.3
NWA	2864	0	3	1.6	0.2	2880	1	4	0	7.6	0.5
OAE	24	0	4	2.0	0.3	24	0	17	0	17.6	0.7
PAC	105	0	6	1.7	-0.4	107	0	8	0	11.0	2.2
RAM	34	0	3	1.5	-1.1	33	0	6	0	10.1	1.9
RCH	413	0	100	2.1	-0.1	413	0	100	0	14.2	1.3

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RRR	88	1	3	1.5	0.4	87	1	5	0	7.8	0.5
RZO	94	0	3	1.8	-0.5	95	1	3	0	6.3	0.8
SLR	99	0	10	1.7	0.2	101	0	12	0	9.1	-0.7
SVA	39	0	8	2.1	0.0	39	8	13	0	7.5	1.0
TAP	295	0	3	1.7	0.1	286	0	5	0	8.8	0.9
TSC	258	2	5	2.0	0.2	256	1	5	0	10.2	1.2
TWA	21	0	10	1.2	0.5	20	0	5	0	6.4	-0.1
UAL	581	0	100	1.7	-0.4	594	0	100	0	8.0	0.5
UPS	1003	0	38	1.6	0.1	1008	0	40	0	9.7	0.0
USA	271	0	4	1.5	0.1	226	0	7	0	9.6	1.7
VIR	294	1	2	1.5	0.1	298	0	3	0	8.3	-0.1
WOA	89	0	0	1.7	0.8	87	0	1	0	6.2	0.8
EU	21891	0	26	1.4	0.2	21891	0	26	0	5.0	0.5
KL	2627	0	19	1.5	0.9	2621	0	19	0	5.1	0.9
LH	339	0	7	1.5	0.9	338	0	7	0	4.5	0.1
TN	40	0	3	1.7	0.3	43	0	7	0	8.7	1.2
N	311	1	3	2.2	0.7	322	0	6	0	8.7	0.7
US ACARS	23663	14	34	1.5	0.3	23663	0	22	0	5.3	0.5

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

```
 WMO   OBS                NUM    NUM
IDENT  TIME  ELM   LEV    OBS   GROSS      SD      RMS     BIAS

DBBH    00    Z    100      7      0       9.0     35.6     34.4
DBBH    12    Z    100     10      0      16.1     17.8      7.5
DBLK    12    Z    100      1      0       0.0      7.0      7.0
ELML7   00    Z    100     12      0       9.6     28.0     26.3
ELML7   12    Z    100     18      0      15.8     36.5     32.9

FNOR    00    Z    100      8      0      67.1     67.2      4.4
FNOR    12    Z    100      9      0      12.3     28.1     25.3
FNOU    00    Z    100     11      0      14.7     30.6     26.8
FNOU    12    Z    100     10      0      16.8     23.4     16.3
FNPH    00    Z    100      3      0       8.2     30.5     29.3

FNPH    12    Z    100      6      0      19.5     30.8     23.8
FNRS    00    Z    100     13      0      13.1     26.8     23.4
FNRS    12    Z    100     12      0      16.6     28.4     23.1
LDWR    00    Z    100     24      0       9.0     11.0     -6.4
LDWR    12    Z    100     24      0       9.2     14.6    -11.3

OVYA2   00    Z    100      2      0       4.5     14.2    -13.5
OVYA2   12    Z    100      2      0       2.5      6.0     -5.5
OXYH2   00    Z    100      5      0       7.6     22.7    -21.4
OXYH2   12    Z    100      4      0      13.5     30.6    -27.5
SWJS    00    Z    100      3      0       4.2     31.0     30.7

SWJS    12    Z    100      3      0       9.6     37.3     36.0
V2XO    00    Z    100      3      0       4.5     23.8     23.3
V2XO    12    Z    100      4      0      25.8     58.3     52.3
WPKD    00    Z    100      9      0      10.0     18.3     15.3
WPKD    12    Z    100      7      0      16.3     24.5     18.3

WTEC    12    Z    100      2      0       1.0     46.0     46.0
ZCBP6   00    Z    100      6      0       3.9      4.0     -0.7
ZCBP6   12    Z    100      4      0      17.8     28.1     21.8
03953   00    Z    100     28      0      16.2     35.9     32.0
03953   12    Z    100     30      0      15.8     30.8     26.4

04018   00    Z    100     29      0      10.8     16.3     12.2
04018   12    Z    100     30      0      10.6     13.8      8.9
04220   00    Z    100     29      0       9.4      9.5     -1.4
04220   12    Z    100     29      0      10.0     10.3     -2.5
04270   00    Z    100     25      0      10.9     11.0     -1.4

04270   12    Z    100     27      0       9.8      9.9     -0.7
04339   00    Z    100     27      0      12.5     12.9      3.3
04339   12    Z    100     29      0      10.9     11.1      1.7
04360   00    Z    100     28      0      10.6     10.6      0.7
04360   12    Z    100     29      0       7.5      8.0     -2.7

08001   00    Z    100     24      0      21.8     23.3      8.1
08001   12    Z    100     24      0      21.4     22.6      7.0
08508   00    Z    100     27      0      20.2     36.7     30.6
08508   12    Z    100     27      0      10.7     36.6     35.0
08522   00    Z    100     29      0       9.7     29.8     28.2

08522   12    Z    100     30      0       7.8     27.3     26.2
08594   12    Z    100     18      0      23.1     45.8     39.5
60020   00    Z    100     29      0       9.5     34.8     33.5
60020   12    Z    100     26      0      12.8     27.8     24.7
71600   00    Z    100     29      0      13.3     23.4     19.3

71600   12    Z    100     29      0      18.5     29.6     23.1
72201   00    Z    100     28      0      11.1     35.8     34.0
72201   12    Z    100     29      0      11.5     40.1     38.4
72402   00    Z    100     29      0      11.1     46.5     45.1
72402   12    Z    100     30      0      10.9     58.5     57.4

74494   00    Z    100     23      0       7.6     24.0     22.8
74494   12    Z    100     30      0      10.6     19.7     16.6
78016   00    Z    100     26      0      15.2     36.2     32.8
78016   12    Z    100     26      0      12.0     38.5     36.6
```

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	9	0	7.6	11.0	8.0
DBBH	12	Z	500	12	0	9.3	9.5	2.1
DBLK	12	Z	500	1	0	0.0	15.0	-15.0
ELML7	00	Z	500	13	0	6.7	6.7	-0.2
ELML7	12	Z	500	20	0	8.2	8.3	-1.3
FNOR	00	Z	500	9	0	39.2	40.6	-10.3
FNOR	12	Z	500	11	0	7.3	11.9	9.4
FNOU	00	Z	500	12	0	12.6	13.4	4.4
FNOU	12	Z	500	11	0	10.0	11.1	4.7
FNPH	00	Z	500	3	0	4.2	6.6	-5.0
FNPH	12	Z	500	7	0	11.8	12.9	-5.1
FNRS	00	Z	500	14	0	10.0	10.0	-0.4
FNRS	12	Z	500	13	0	8.8	9.0	-1.9
LDWR	00	Z	500	24	0	6.7	6.8	0.5
LDWR	12	Z	500	24	0	9.1	9.5	-2.6
OVYA2	00	Z	500	2	0	3.5	4.3	-2.5
OVYA2	12	Z	500	2	0	6.0	9.2	-7.0
OXYH2	00	Z	500	5	0	7.1	22.5	-21.4
OXYH2	12	Z	500	4	0	10.1	19.6	-16.8
SWJS	00	Z	500	3	0	5.7	17.9	17.0
SWJS	12	Z	500	3	0	10.1	23.6	21.3
V2XO	00	Z	500	4	0	7.3	9.7	6.5
V2XO	12	Z	500	4	0	28.8	55.7	47.8
WPKD	00	Z	500	9	0	5.3	6.1	3.1
WPKD	12	Z	500	7	0	16.0	17.0	5.9
WTEC	12	Z	500	2	0	5.0	20.6	20.0
ZCBP6	00	Z	500	6	0	3.1	3.6	-1.8
ZCBP6	12	Z	500	5	0	9.9	11.2	5.4
03953	00	Z	500	28	0	9.4	14.6	11.3
03953	12	Z	500	30	0	9.9	13.2	8.8
04018	00	Z	500	29	0	7.4	13.7	11.4
04018	12	Z	500	30	0	8.7	10.3	5.5
04220	00	Z	500	29	0	6.0	8.2	5.6
04220	12	Z	500	29	0	9.3	10.8	5.6
04270	00	Z	500	29	0	9.7	10.4	3.7
04270	12	Z	500	30	0	7.2	9.9	6.8
04339	00	Z	500	27	0	10.0	15.9	12.4
04339	12	Z	500	29	0	6.9	11.0	8.6
04360	00	Z	500	29	0	9.2	9.4	1.6
04360	12	Z	500	29	0	7.0	7.1	0.8
08001	00	Z	500	28	0	11.3	11.6	2.5
08001	12	Z	500	28	0	12.4	12.4	1.0
08508	00	Z	500	27	0	19.3	19.6	3.3
08508	12	Z	500	28	0	9.7	11.7	6.6
08522	00	Z	500	29	0	6.8	8.3	4.7
08522	12	Z	500	30	0	7.7	11.3	8.3
08594	12	Z	500	24	0	7.0	7.1	-1.6
60020	00	Z	500	29	0	6.7	7.7	3.8
60020	12	Z	500	29	0	8.2	10.5	6.6
71600	00	Z	500	29	0	10.4	10.6	-2.1
71600	12	Z	500	29	0	13.7	13.7	0.4
72201	00	Z	500	29	0	7.8	11.5	8.5
72201	12	Z	500	30	0	7.6	8.2	3.2
72402	00	Z	500	29	0	5.5	7.7	5.4
72402	12	Z	500	30	0	7.5	10.3	7.0
74494	00	Z	500	26	0	6.2	6.9	3.0
74494	12	Z	500	30	0	6.7	7.4	3.3
78016	00	Z	500	27	0	15.2	16.5	6.5
78016	12	Z	500	26	0	7.4	14.0	11.9

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

```
 WMO  OBS                 NUM   NUM     %
IDENT TIME ELM   LEV  OBS  GROSS   REJ    RMS   UBIAS   VBIAS

DBBH   00   V    100    7     0      0    4.5   -0.7     0.0
DBBH   12   V    100    8     0      0    4.7    2.3    -1.3
DBLK   12   V    100    1     0      0    4.8   -0.8    -4.7
ELML7  00   V    100   11     0      0    6.3    2.4    -1.1
ELML7  12   V    100   16     0      0    5.7   -1.4     2.1

FNOR   00   V    100    8     0      0    3.5   -1.2    -0.1
FNOR   12   V    100    8     0      0    3.1   -0.3    -0.7
FNOU   00   V    100    9     0      0    4.4   -1.4     0.6
FNOU   12   V    100   10     0      0    4.1   -0.9    -0.6
FNPH   00   V    100    3     0      0    4.1   -0.1    -2.8

FNPH   12   V    100    4     0      0    4.8    1.2    -1.2
FNRS   00   V    100   13     0      0    4.0    1.5     0.8
FNRS   12   V    100   12     0      0    3.5    0.0     0.7
LDWR   00   V    100   24     0      0    3.4    0.8    -1.0
LDWR   12   V    100   24     0      0    2.3    0.5    -0.6

OVYA2  00   V    100    1     0      0    3.4   -3.3     0.6
OVYA2  12   V    100    2     0      0    4.4    1.0     0.6
OXYH2  00   V    100    4     0      0    4.8   -0.6    -0.6
OXYH2  12   V    100    4     0      0    2.2    0.4    -0.5
SWJS   00   V    100    3     0      0    2.2    0.9     1.9

SWJS   12   V    100    3     0      0    3.9    2.8    -1.6
V2XO   00   V    100    3     0      0    1.8    1.3     0.6
V2XO   12   V    100    4     0      0    3.5    1.5     1.8
WPKD   00   V    100    8     0      0    4.0   -1.8     0.7
WPKD   12   V    100    5     0      0    4.8   -1.5    -1.5

WTEC   12   V    100    2     0      0    5.7   -5.5     0.1
ZCBP6  00   V    100    5     0      0    3.4    0.0    -0.8
ZCBP6  12   V    100    3     0      0    5.4    1.5    -2.8
03953  00   V    100   28     0      0    3.4   -0.3     1.6
03953  12   V    100   30     0      0    2.8    0.1     0.2

04018  00   V    100   29     0      0    3.5    0.3    -0.5
04018  12   V    100   30     0      0    2.8    0.0    -0.5
04220  00   V    100   29     0      0    3.7    0.1    -0.1
04220  12   V    100   29     0      0    2.9    0.0     0.0
04270  00   V    100   23     0      0    4.8    0.8     2.1

04270  12   V    100   27     0      0    4.9    0.9     1.5
04339  00   V    100   25     0      0    5.4   -0.9    -0.4
04339  12   V    100   28     0      0    4.0    1.6     0.2
04360  00   V    100   28     0      0    3.4    0.3     0.9
04360  12   V    100   28     0      0    3.3   -0.1     0.4

08001  00   V    100   21     0      0    5.1    1.0     1.7
08001  12   V    100   20     0      0    3.7   -0.2    -0.6
08508  00   V    100   15     0      0    3.8    0.3     0.6
08508  12   V    100   15     0      0    4.3    0.8     0.3
08522  00   V    100   26     0      0    4.0    0.3    -0.1

08522  12   V    100   28     0      0    5.0   -0.1     0.4
08594  12   V    100   19     0    100    6.7   -3.1     2.2
60020  00   V    100   28     0      0    4.8    0.3     0.5
60020  12   V    100   26     0      0    4.5    0.9     1.5
71600  00   V    100   29     0      0    4.8    0.7     0.1

71600  12   V    100   29     0      0    4.7    1.1     0.9
72201  00   V    100   28     0      0    3.7   -0.2     0.7
72201  12   V    100   29     0      0    3.3    0.0    -1.1
72402  00   V    100   29     0      0    3.6    0.8     0.6
72402  12   V    100   30     0      0    4.7    0.6     0.1

74494  00   V    100   22     0      0    4.0   -0.6     0.3
74494  12   V    100   29     0      3    5.0   -0.8     1.4
78016  00   V    100   25     0      0    4.7   -0.4     0.3
78016  12   V    100   26     0      0    5.0   -0.2     1.1
```

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	9	0	0	4.3	-0.4	0.0
DBBH	12	V	500	11	0	0	3.4	0.0	0.8
DBLK	12	V	500	1	0	0	3.1	-0.9	3.0
ELML7	00	V	500	11	0	0	5.1	-0.5	-1.7
ELML7	12	V	500	17	0	0	2.8	-0.1	-0.9
FNOR	00	V	500	9	0	11	8.1	1.9	-1.2
FNOR	12	V	500	6	0	0	2.9	0.4	0.4
FNOU	00	V	500	8	0	0	3.2	0.6	-0.9
FNOU	12	V	500	9	0	0	3.0	0.3	-1.2
FNPH	00	V	500	3	0	0	3.1	-2.8	-0.7
FNPH	12	V	500	5	0	0	3.1	-1.2	0.5
FNRS	00	V	500	12	0	0	4.8	-1.7	0.7
FNRS	12	V	500	10	0	0	3.4	-1.4	0.9
LDWR	00	V	500	24	0	0	4.7	-2.0	-0.5
LDWR	12	V	500	24	0	0	4.1	0.7	-0.3
OVYA2	00	V	500	1	0	0	3.6	3.6	0.2
OVYA2	12	V	500	2	0	0	1.9	-1.7	0.7
OXYH2	00	V	500	5	0	0	3.7	0.2	2.1
OXYH2	12	V	500	4	0	0	4.0	-1.3	-0.1
SWJS	00	V	500	3	0	0	3.0	1.3	1.3
SWJS	12	V	500	3	0	0	2.7	1.1	0.4
V2XO	00	V	500	4	0	0	2.8	0.5	0.1
V2XO	12	V	500	4	0	0	4.5	-0.3	0.1
WPKD	00	V	500	9	0	0	3.9	0.0	-0.2
WPKD	12	V	500	5	0	0	2.9	-0.1	1.1
WTEC	12	V	500	2	0	0	4.9	3.7	-1.0
ZCBP6	00	V	500	5	0	0	5.3	2.5	1.8
ZCBP6	12	V	500	4	0	0	2.6	-1.2	-0.4
03953	00	V	500	27	0	0	3.8	-0.6	0.3
03953	12	V	500	30	0	0	3.8	0.0	-0.2
04018	00	V	500	29	0	0	4.3	-0.1	-0.7
04018	12	V	500	30	0	0	4.9	-0.1	-0.5
04220	00	V	500	29	0	0	4.0	0.3	-0.7
04220	12	V	500	29	0	0	3.6	-0.3	0.1
04270	00	V	500	28	0	0	4.5	0.2	-0.8
04270	12	V	500	30	0	0	3.9	0.6	-1.1
04339	00	V	500	27	0	3	5.4	-0.6	0.0
04339	12	V	500	27	0	0	5.2	0.1	-1.0
04360	00	V	500	29	0	0	3.5	-0.7	0.1
04360	12	V	500	29	0	0	4.6	-1.9	0.2
08001	00	V	500	28	0	0	5.9	0.7	1.7
08001	12	V	500	26	0	0	5.3	-0.1	-0.6
08508	00	V	500	15	0	0	3.9	-0.2	0.1
08508	12	V	500	17	0	0	3.7	0.5	0.7
08522	00	V	500	28	0	0	4.7	0.5	-0.1
08522	12	V	500	26	0	0	5.5	1.3	0.2
08594	12	V	500	24	0	100	4.1	-1.2	-1.0
60020	00	V	500	28	0	0	4.1	-0.4	1.2
60020	12	V	500	27	0	0	3.7	0.2	0.0
71600	00	V	500	29	0	0	4.2	0.5	-0.4
71600	12	V	500	29	0	0	4.4	1.3	0.2
72201	00	V	500	29	0	0	2.7	0.1	-0.2
72201	12	V	500	30	0	0	3.5	1.0	-0.4
72402	00	V	500	29	0	0	2.7	0.2	-1.0
72402	12	V	500	30	0	0	3.2	0.6	0.5
74494	00	V	500	26	0	0	5.1	-1.5	-0.5
74494	12	V	500	30	0	3	5.2	-1.3	-0.3
78016	00	V	500	26	0	0	5.1	-0.3	0.7
78016	12	V	500	26	0	0	3.0	-0.2	0.1

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed $m\ s^{-1}$
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45